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ABSTRACT

This study was commissioned to delineate the role of resource and bibliographic centers in the national network of library and information services proposed by the National Commission on Libraries and Information Science. As background material, an overview of existing centers was constructed from earlier interlibrary loan studies; small surveys of public, special, and state library agencies; and staff visits to a number of existing centers and regional networks. To meet the need for improved resource sharing, a recommended structure for the coordination and integration of resource and bibliographic centers into a national network for improved interlibrary loan service was developed. As part of this design the nation was divided into a number of suggested bibliographic regions and delivery zones for the physical supply of requested materials. Various kinds and levels of services have been considered at each level within the program--national, regional, zone, state, and local. Estimated developmental and operational costs are shown along with a proposed schedule for the accomplishment of the recommended program. (Author/SL)

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FINAL REPORT

RESOURCE AND BIBLIOGRAPHIC SUPPORT

FOR

A NATIONWIDE LIBRARY PROGRAM

by

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TABLE OF CONTENTS

<u>Chapter</u>		<u>Page</u>
	ACKNOWLEDGEMENTS.	iv
	GLOSSARY.	vi
1	SUMMARY AND RECOMMENDATIONS	1
2	INTRODUCTION.	5
	2.1 Problem	5
	2.2 Study Objectives.	7
	2.3 Study Approach.	8
3	RESOURCE SHARING.	13
	3.1 Previous Studies.	14
	3.2 Need for Improved Services.	20
	3.3 Alternatives for Improvement.	25
4	ORGANIZATION AND FUNCTIONS OF A NATIONAL LIBRARY NETWORK	27
	4.1 Definition of the Network	27
	4.2 Goals, Objectives, Functions and Organization of the National Library Network	28
	4.3 Structure of the Network.	35
	4.4 User Access to the Network.	38
	4.5 Role of the NLN in Relation to Local and State Libraries, Systems, and Networks.	38
	4.6 The Geographic Divisions of the Multi-State Level: Regions and Zones	41
	4.7 The National Level of the NLN	45
	4.8 Channels of Communication	50
5	THE RESOURCE SYSTEM	52
	5.1 Introduction.	52
	5.2 Current Developments in Resource Sharing.	53
	5.3 Goals of the National Resource System	58
	5.4 Using the Resource System; The Patron and the Local Library	60
	5.5 The State Level	63
	5.6 The Delivery Level (Interstate Resource Zones).	70
	5.7 The Regional Component of the National Resource System.	77
	5.8 Resource System Components at the National Level	81

TABLE OF CONTENTS (Continued)

<u>Chapter</u>		<u>Page</u>
6	THE NATIONAL BIBLIOGRAPHIC SYSTEM	85
6.1	State Bibliographic Services	85
6.2	Regional Bibliographic Centers	86
6.3	National Bibliographic Services	89
6.4	Inadequacies of Current Bibliographic Services	92
6.5	Goals and Objectives of the Bibliographic System	93
6.6	Using the System	97
6.7	The Bibliographic System: National Level.	99
6.8	The Regional Components of the National Bibliographic System	110
7	ECONOMICS OF THE NETWORK.	124
7.1	Elements for Costing	125
7.2	Costs for Operation of the Centers	125
7.3	Programs for Resource Support.	130
7.4	The Automated System	133
7.5	Cost of Input to Data Bases.	134
7.6	Estimated Costs of the NLN, First Three Years.	140
7.7	Funding the Network.	142
8	IMPLEMENTATION.	143
8.1	Preliminary Steps.	144
8.2	Organization of the Network.	145
8.3	Funding the National Library Network	146
8.4	Phases of Development.	147
8.5	Impact on Existing Systems	148
	BIBLIOGRAPHY.	150
APPENDICES		
A	ESTABLISHING REGIONS FOR RESOURCE AND BIBLIOGRAPHIC ACTIVITY.	153
B	SURVEY OF PUBLIC AND SPECIAL LIBRARIES.	172
C	INVENTORY OF STATE AND REGIONAL COOPERATIVE ACTIVITY.	194

TABLE OF CONTENTS (Continued)

<u>Appendix</u>		<u>Page</u>
D	GOALS AND OBJECTIVES OF THE NATIONAL RESOURCE SYSTEM.	225
E	ANALYSIS OF UNFILLED REQUESTS IN THREE STATES . . .	239
F	DEVELOPMENT OF THE ON-LINE FILES OF THE NATIONAL BIBLIOGRAPHIC CENTER	255

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
4-1	Organization of the National Library Network. . 31
4-2	Organization of National Network Systems (National Level). 32
4-3	Organization of National Network Systems (Regional Level). 33
4-4	Relationship of levels in the Resource and Bibliographic Systems 34
4-5	Structure of the National Library Network (A) . 36
4-6	Structure of the National Library Network (B) . 37
4-7	Initiating a Request for an Identified Item . . 39
4-8	Alternative Routes of Access - Resource System. 42
4-9	Following a request through the Resource System of the NLN. 43
4-10	Map A - A Scheme of Regions and Zones for the Resource and Bibliographic Network. 46
4-11	Map B - A Scheme of Regions and Zones for the Resource and Bibliographic Network. 47
4-12	Communications Patterns, National Library Network 51
5-1	Possible Methods of Delivery of Materials to Libraries in the Zonal Level. 78
6-1	Conceptual Configuration of the Computer Network for the National Library Network. 122
A-1	Existing and Planned Regional Library Associations. 155
A-2	Existing and Planned Multi-State Library Consortia 156
A-3	Map A - A Scheme of Regions and Zones for the National Library Network. 160

LIST OF FIGURES (Continued)

<u>Figure</u>		<u>Page</u>
A-4	Map B - A Scheme of Regional and Zones for the National Library Network.	166
C-1	Inventory of State Systems and Networks . . .	200
C-2	Regional (Multi-State) Cooperatives	205
C-3	Statewide Union Catalogs (UC) and/or Union Lists of Serials (ULS).	210

LIST OF TABLES

<u>Table</u>		<u>Page</u>
3-1	Estimated volume of interlibrary lending in 1972 for all types of libraries.	22
7-1	Unique records in the National Union Catalog. . .	.138
A-1	Characteristics of regions and zones for Map A. .	.161
A-2	Characteristics of regions and zones for Map B. .	.167
B-1	Estimated magnitude of annual interlibrary loan activity for public and special libraries, 1972 .	.175
B-2	Percentage distribution for adequacy of ILL (in meeting patrons needs) by type library and collection size.	.176
B-3	Percentage distribution of most pressing ILL <u>lending</u> problems by type of lending library and collection size	.178
B-4	Percentage distribution of most pressing ILL <u>borrowing</u> problems by type of borrowing library and collection size	.179
B-5	Percentage distribution of materials most needed as ILL resources by type of library	.180
B-6	Percentage distribution of services that a regional or national library resources network should provide by type of library and collection size.	.181
C-1	Distribution of states by number of operational or planned networks	.196
C-2	Characteristics of state systems and networks . .	.197
C-3	Distribution of states by participation in regional (multi-state) networks	.199
C-4	Percentage distribution of states by number of union lists	.212
C-5	Percentage distribution of most pressing ILL problems of libraries within the states	.213

LIST OF TABLES (Continued)

<u>Table</u>		<u>Page</u>
C-6	Percentage distribution of types of libraries in the states whose interlibrary loan needs are adequately met within their states.	214
C-7	Percentage distribution of materials most needed as <u>added</u> resources by the states.	215
C-8	Percentage distribution of services that a regional or national library resources network should provide.	216
E-1	Type of publication of 140 unfilled NYSILL requests.	241
E-2	Subject of 140 unfilled NYSILL requests	242
E-3	Date of publication of 140 unfilled NYSILL requests.	243
E-4	Language of 140 unfilled NYSILL requests.	244
E-5	Type of publication, Illinois Resource Library requests.	245
E-6	Subject of Illinois Resource Library requests	246
E-7	Language of Illinois Resource Library requests.	247
E-8	Date of publication of Illinois Resource Library requests.	247
E-9	Reason request not filled, Illinois Resource Libraries	248
E-10	Type of publication, 1969-70 and 1973 MINITEX requests.	249
E-11	Subject of 1969-70 and 1973 unfilled MINITEX monograph requests.	250
E-12	Langauge of 1969-70 and 1973 unfilled MINITEX monograph requests.	251
E-13	Date of publication of 1969-70 and 1973 unfilled MINITEX monograph requests.	252
E-14	Reason request not filled	253

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GLOSSARY

bibliographic access - the ability to identify a unique item from a standard description of it.

guaranteed access - the assurance that a designated item is owned by and may be obtained from a designated resource facility. (Guaranteed access does not imply guaranteed immediate availability.)

physical access - the ability to obtain the material item desired.

secondary bibliographic access - the ability to identify a subset of a bibliographic item (e.g., identification of periodical articles within an issue through use of indexes, abstracts, etc.).

resource availability - the set of conditions (accessible, on the shelf, and a method for delivery) which enable the actual delivery of an item to the requestor.

bibliographic record - the specific and unique description of any recorded item.

original cataloging - determination of the descriptive material to be contained in the bibliographic record, from the physical item.

shared cataloging - a system for determining bibliographic descriptions for local holdings by utilizing the information provided by another library to catalog the item.

cathode ray tube (CRT) terminal - a computer terminal which provides a video display of data.

commercial services - services provided by institutions in return for payment by customers.

cooperative collection development - development of multi-library collections by agreement on acquisition policies.

cost-effectiveness - a standard measure of performance for evaluation of systems, expressed as a ratio of some measure of cost to some measure of performance.

data base - a file or collection of files of data in machine processible form.

federal - synonymous with U.S. Government.

file - an organized collection of data.

hardware - physical equipment used in a computer system, as opposed to a software program or method of use (e.g., mechanical, magnetic, electrical or electronic devices).

information - facts or data; knowledge.

recorded information - facts or data which have been recorded in books, periodicals, newspapers, reports, audiovisual formats, magnetic tapes, data bases, and other recording media.

information center - same as information service (q.v.).

information community - all individuals or organizations involved in producing, transferring and using information.

information service - 1. any organization with the primary function of providing information. 2. an organization utilizing a variety of materials in a narrow subject field to provide extensive services such as evaluation, synthesis and review. (cf. library)

input - 1. information fed into a computer. 2. anything put into a system.

interactive - pertaining to exchange of information and control between a user and a computer process, or between computer processes.

interlibrary loan - a transaction in which library material is made available by one library to another for the use of an individual; includes the provision of a copy as substitute for loan of the original material.

library - an institution where diverse recorded information is stored, systematically organized, and made available for use. It may contain books, films, magazines, maps, manuscripts, microfilms, audiovisual materials, tape recordings, computer tapes, etc. and the means for providing services from these resources.

primary library - the local library to which the user turns for library materials by virtue of his affiliation with the institution or jurisdiction served by it.

types of libraries - 1. Academic: college and university libraries. 2. School: elementary, secondary and technical school libraries. 3. Government: libraries serving agencies of federal and state governments. (May also be subclassified in other types.) 4. Public: general libraries supported by public funds and providing services to all individuals residing within the pertinent political jurisdiction. 5. Special:

libraries providing particular materials and services to identified clientele in specific subject areas; includes business and industrial, legal, medical, subject-oriented research and some federal government libraries.

library service - the process by which libraries satisfy user requests for materials and information in any medium.

library user - an actual or potential consumer of the services provided by a library.

forms of materials - generally characterized as print or non-print; print materials include any items in print characters, including microforms; non-print materials include tapes, records, audiovisual materials, filmstrips, slides, etc.

national - refers to the combined interests of the United States.

National Bibliographic Center - the facility at the national level of the NLN which provides location information and referrals for materials held in national resource centers and in foreign libraries willing to loan resources.

National Bibliographic System - a national system for providing standardized bibliographic descriptions for library materials in machine-readable format for the purpose of permitting local control and non-local location of individual items, with associated secondary bibliographic and technical processing services.

National Library Coordinating Agency - an independent national agency responsible for the planning and coordination of library and information activities.

National Library Network - an independent agency responsible for providing resource and bibliographic support and the necessary communications linkages for libraries and information systems nationwide.

National Program - a plan for the coherent development of library and information activities in the U.S. to meet the needs of its people.

National Resource System - a hierarchically ordered set of resource libraries organized to provide the rapid delivery of materials in any format requested by a citizen through his primary library.

nationwide - that which extends throughout the country.

network - 1. an interconnected or interrelated group of nodes.
2. in connection with a disciplinary or problem-oriented qualifier, the combination of material, documentation, and human resources that are united by design to achieve certain objectives

computer network - an interconnection of assemblies of computer systems, terminals and communications facilities.

library network - formal organization among libraries for cooperation and sharing of resources, usually with an explicitly hierarchical structure, in which the group as a whole is organized into subgroups with the expectation that most of the needs of a library will be satisfied within the subgroup of which it is a member.

off-line - pertaining to equipment or devices not under control of the central processing unit.

on-line - pertaining to the ability to interact with a computer directly.

on-line circulation system - a system which provides the ability to ascertain the status of any item in a library by search of a machine-readable circulation file.

private sector - includes organizations outside of government, such as profit-making companies and not-for-profit institutions, which process, store, or disseminate information.

public sector - library and information activities directly affiliated with local, state, and federal government.

region - a group of states with contiguous boundaries organized to provide specified support services to libraries.

Regional Library Support Center - a physical facility, usually but not necessarily housed in a library, which serves as headquarters for a region. The Center will provide both resource and bibliographic support.

resource library - a service organization (designated library or other facility) providing materials to libraries and receiving compensation for its services.

Resource Center (Zonal) - a service organization providing materials to libraries within its zone, referring unfilled requests to other resource libraries, and providing materials to libraries in other zones. The Resource Center is the first level in the hierarchical resource system.

National Resource Library - a service organization providing materials to libraries throughout the nation. The National

Resource Libraries will function as backup to the Regional Resources Libraries and provide mainly specialized materials.

Regional Resource Library - a service organization providing materials to libraries within its region and to libraries in other regions. The Regional Resource Library functions as a backup to Resource Centers.

resource sharing - the joint use of resources available to a network by a number of dispersed users.

resource zone - a group of states with contiguous borders organized to facilitate resource sharing delivery services and cooperative collection development. Several resource zones combine to form a region.

software - a set of computer programs, procedures, rules and associated documentation concerned with the operation of computers. Compare: hardware

State Library/Library Agency - the instrumentality of the state with designated responsibility for intrastate library development.

state node - a service organization designated both as a resource library for the state and as a Zonal Resource Center. The state node provides the link between intra- and inter-state library organization.

statewide network - the organization of libraries and library service agencies within a state to coordinate and support the provision of services to all citizens of the state.

system - a set of component devices and people, carrying out operations and procedures in a clearly defined manner for the accomplishment of established objectives.

System for Inter-Library Communication (SILC) - a means for facilitating communications among libraries for the purposes of inter-library loan and providing statistical reports and an accounting system for the use of inter-library loan. SILC is based on the use of a time-sharing computer system. See Hayes, Robert M., A System for Inter-Library Communication (SILC), Washington, D.C.: Association of Research Libraries, December 1973.

technology - the body of methods and materials used to apply science to a given objective.

terminal - a device that permits data entry into or data exit from a computer system or network (e.g. a data capture device, a teletypewriter or a computer). Terminals may accommodate data

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in human or machine-readable form.

topical - referring to a body of materials and information which share a common characteristic, such as form, period, language, or subject.

1. SUMMARY AND RECOMMENDATIONS

Foremost among the nationwide goals of the library community is the access to needed information resources for all persons in all locations in the U.S. The perceived right of individuals to such access provides the foundation for national information planning.

For each library, even the largest, the hope of adequately supplying its identified user groups has been greatly constrained by simultaneous inflation of both cost and quantity of materials. While future technological developments may well make possible on-line full text retrieval of all library materials at local terminals or the instantaneous remote "publication" of materials upon demand, the present situation requires more immediate solutions.

A basis for these solutions exists in the concept of interlibrary loan, the process by which one library borrows or duplicates needed materials from a second for requesting patrons. Not presently viewed as a reasonable alternative to local ownership of materials, it nonetheless suggests an expanded concept of resource sharing -- cooperative activity supported by structure and coordination developed at the national level. Rational development of a nationwide program for resource sharing requires:

1. Cooperative collection development. Materials must be held somewhere if access is to be provided, and this requires coordinated acquisitions.
2. Bibliographic access to materials. If needed information is to be obtained it must be possible:
 - a. To know that the information exists in recorded form.
 - b. To know which collection holds the needed item.

- c. To locate the item within a designated collection. Current wide variations in bibliographic descriptions inhibit this exchange, since the same item may be differently identified in different libraries and bibliographies.

A prime requisite of effective resource sharing then, is a standard bibliographic record, utilized consistently at all institutions cooperating in the sharing program.

3. Channels of communications. Methods of communication must be adequate to permit rapid identification of materials and their location as well as transmission of requests for delivery of materials. Channels must be structured to insure access to the resource sharing program from all levels of the information community.
4. Delivery of materials. Once identified and located, materials must be made physically available to users.
5. Compensation to lending libraries. Both borrowing and lending libraries should benefit from participation in a resource sharing program, and designated libraries should receive some compensation for making their resources available.
6. Education in concepts and use of the program. Users must be made aware of the program and its possible services to them. Library staffs must also be educated to new concepts in library services, as well as trained to operate within the new systems provided.

Recognizing these requirements, this study recommends:

1. That a National Library Network be established as an independent agency of the Federal Government, (Chapter 4 and Section 4.2) comprised of three coordinated systems:
 - a. A Resource System designed to provide guaranteed access to all needed materials through designation or development of libraries or other information facilities which will provide such access, and through coordination of collection development support to insure that needed materials are collected and made available for users. (Chapter 5, Appendix D)

- b. A Bibliographic System designed to provide a unique authoritative bibliographic description for each item held in guaranteed access, as well as the locations of such materials. In developing and providing this requisite bibliographic support, the bibliographic system should also provide related technical processing services aimed at reduction of unnecessary duplication of library functions in order to permit greater cost effectiveness in processing library materials and improvements in staff utilization in local libraries. (Chapter 6 and Section 6.5)
 - c. A Communications System designed to provide on-line communication of bibliographic data and requests for data and services between levels of the network. The System should facilitate communications among the multiple components of the National Library Network, including provision for educational and training programs for staffs and users. (Channels of Communication are illustrated in Figure 4-12.)
- 2. That the Library of Congress, through its MARC Project should be designated as implementor and coordinator in the expansion of the current MARC data base to provide the comprehensive authoritative bibliographic coverage required, in a manner responsive to needs of the total national information community. (Appendix F) In addition to its aid and support of the National Library Network in the development of bibliographic records, it is recommended that the Library of Congress be designated as library of last resort within the resource chain, and as coordinator for interchanges between the National Library Network and the international information community.
 - 3. That operational responsibility for the network should rest largely at the regional level made up of four Regional Library Support Centers (Figure 4-3) designated within the framework of the National Library Network. These centers should be responsive to particular needs of the regions as well as the provision of national programs developed and supported at the national level. An advisory board representing all elements of the library community within the defined area should guide development of support center services and insure adequate support of needs at state and local levels. (Sections 5.7 and 6.8)

4. That development at the regional centers should include organization of delivery zones which will provide rapid access to needed materials available at that level. Zonal delivery systems should incorporate the first level of guaranteed resources. (Figure 4-5 and 4-6. Section 5.6)
5. That individual states should designate the State Library, Library Agency, or other identified library or agency, as state coordinator for library support services of the network, and should ensure adequate channels and facilities, if needed, for providing access to support services for local libraries or library systems. In addition, the designated library or agency, should ensure maximum utilization of state resources prior to accessing resources from the library network. (Section 4.5)
6. That individual libraries should play a participatory role in the Network, sharing both their material and human resources by serving as system components and designated Resource Libraries, and by involvement in decision making to provide network services most responsive to their patrons. (Section 4.5)

Today's problems and today's solutions may not be the problems or solutions of tomorrow, but this should not prevent attempting to provide immediate solutions. It is essential, however, that systems developed to provide solutions to today's problems have an inherent capacity for change, so that methods and approaches may evolve in full responsiveness to changing national capabilities, patterns, and needs.

2. INTRODUCTION

The National Commission on Libraries and Information Science (NCLIS) is charged with the development of "overall plans for meeting national library and information needs and for the coordination of activities at the Federal, state, and local levels." As part of this planning, the NCLIS is seeking ways to insure the provision of adequate bibliographic and resource services in the future. Most planners agree that to obtain adequate future services will require improved sharing of library and information resources.

Interlibrary loan is the primary vehicle for the sharing of materials between libraries and may be the oldest form of interlibrary cooperation. In the United States a nationwide agreement on interlibrary loan¹ has served libraries very well for about three decades. Although guidelines on eligibility, procedures, and message formats exist through the code, interlibrary loan is an informal system with no real service standards. Growth in the last 20 years has placed a number of libraries in the position of being very large net-lending libraries in a system that, for the most part, provides no reimbursement for their services. In the last few years the slowness, undependable service, and cost inequities of the present system have caused librarians to consider possible new techniques for providing interlibrary loan service.

2.1 Problem

Increased library funding during the years of the 1960's was inadequate for collections to keep pace with the so-called

¹ See Thomson, Sarah K., Interlibrary Loan Procedure Manual, Chicago, Illinois: American Library Association, 1970.

information explosion. Current budgetary cutbacks in many libraries are widening that gap. No library is able to meet all the demands of its own borrowers, and many smaller libraries are becoming increasingly dependent upon the broader resources of the large research libraries to meet the expanding needs of an ever more sophisticated clientele. The originally conceived two-way street of interlibrary loan has become virtually a one-direction freeway in some instances.

Even with free access to many library resources through interlibrary loan, information needs are still far from met. It is estimated that only about 60 percent of all interlibrary loan requests received by libraries are filled on the first attempt. More than 50 percent of the materials requested, but not supplied, are not owned by the library receiving the requests. Poor and uncoordinated bibliographic access has limited the potential for locating materials not widely held; and collection policies of individual libraries, necessarily aimed at the needs of their own borrowers, leave gaps and deficiencies in the overall holdings. The United States has no national library or group of libraries charged with the responsibility for acquiring and making available all those materials not available elsewhere.

Present interlibrary loan policies which restrict the materials to be loaned and the types of patrons for whom loans may be requested, further limit the access by many to needed information. This currently unmet demand may be expected to generate increasing pressures for expansion of interlibrary lending.

The tradition of library cooperation and free access to information has made librarians reluctant to impede this free exchange, yet accelerating costs combined with new budgetary stringencies make some changes in present interlibrary practices imperative. Understandably, even in large libraries, the needs of the individual library's own users must be first served.

Unilateral action to reduce this burden by individual libraries may only further exacerbate an already strained situation. The increasing needs for supplementary library services and the decreasing ability of present resources to meet those needs are nationwide, and solutions should be sought on a national level.

Success of a national information program for the provision of materials to supplement individual local library collections is ultimately dependent upon the ability to identify and locate the information or specific material needed. No library or network of libraries is more effective than its bibliographic access. An important aspect in development of resources for actual provision of materials, then, must be a parallel or intrinsic development of bibliographic tools and services.

2.2 Study Objectives

The NCLIS contracted with Westat for a study to consider the role of resource centers and bibliographic centers as components of a national network of libraries and information services. The product of this investigation was to be a report that concentrated on recommendations for the future development of state, regional, and topical resource centers as they exist now and as the existing array should be managed to meet future requirements. From analysis of existing centers, recommendations should be made on the changes necessary to develop a cost-effective national network of resource centers for access to texts, graphics, and other recorded library materials. Recommendations on locations, size, staffing, facilities, services, and plans for financing such centers were to be developed.

State and regional bibliographic centers in the United States were to be studied to derive the components which could become part of a network of bibliographic services and centers, defining the scope and content of a model center. These centers, when designed, should serve as bibliographic filters in the network, act as switching points within the system, provide specified bibliographic services to libraries and information centers within their regions, and supply well-defined technical services of a supportive nature.

2.3 Study Approach

Initial emphasis was on the identification and examination of recent literature concerning content and organization of state and regional bibliographic services and centers and state, regional, and topical resource centers. Based upon review of the recent literature and the available data collected and analyzed by Westat in previous interlibrary loan studies,^{2,3,4,5,6} plans

² Williams, Gordon, et. al., Library Cost Models: Owning Versus Borrowing Serial Publications, Chicago, Illinois: Center for Research Libraries, November 1968.

³ Palmour, Vernon E., Bryant, Edward C., Caldwell, Nancy W., and Gray, Lucy M., A Study of the Characteristics, Costs, and Magnitude of Interlibrary Loans in Academic Libraries, Westport, Connecticut: Greenwood Publishing Company, 1972.

⁴ Palmour, Vernon E., and Gray, Lucy M., Costs and Effectiveness of Interlibrary Loan and Reference Activities of Resource Libraries in Illinois, Springfield, Illinois: Illinois State Library, 1972.

⁵ Palmour, Vernon E., Olson, Edwin E., and Roderer, Nancy K., Methods of Financing Interlibrary Loan Services, Washington, D.C.: Association of Research Libraries, February 1974.

⁶ Palmour, Vernon E., Bellassai, Marcia C., and Gray, Lucy M., Access to Periodical Resources: A National Plan, Washington, D.C.: Association of Research Libraries, February 1974.

were formulated for the additional knowledge required on current and planned activities of resource and bibliographic centers. The majority of data on the magnitude and characteristics of inter-library loan services available at the outset of this study focused on academic libraries.

In order to supplement available data on interlibrary loan for non-academic libraries, a brief mail survey was designed to solicit basic data on activity levels and perceived needs for improved interlibrary loan service from a national sample of public and special libraries. After review of available materials on the scope and services of existing bibliographic and resource centers, a mail form was also prepared to inquire about on-going interstate and intrastate operations. This form was sent to each state library agency to assist in the identification and development of an inventory and profile of existing resources.

An overview of the existing resource and bibliographic centers was constructed from earlier studies, small surveys of public, special, and state library agencies, and staff visits to a number of centers and existing regional networks. Starting with this background material, the primary thrust of the study was a conceptual design of resource and bibliographic centers in a nationwide program of library support. Given this task, the effort devoted to collection and analysis of new data was the minimal level believed necessary.

The bulk of project effort was devoted to defining a structure for allowing the organization of existing resource centers and bibliographic centers into a nationwide program for improved interlibrary loan service. It was recognized from the outset that the successful development of a nationwide program would require an evolutionary process promoting growth from the grassroots level (local libraries) upwards, taking into account

the existing cooperative arrangements. Based on the knowledge of current resources and the anticipated needs of the future, several alternatives to various aspects of bibliographic control and physical access to library materials were developed. These alternatives were evaluated in terms of several criteria namely,

1. A national program should be built primarily on existing resources.
2. The program must recognize independent building blocks with no surrender of their autonomy.
3. The program must be economically feasible.
4. There should be minimal solutions that would not expand the present role of local libraries into new services which could not be afforded.
5. Cost savings would probably not be a reasonable criteria, but more effective service at the same overall level of spending by local libraries should be a reasonable goal.

This report, after a brief discussion of the need for improved resource sharing and alternatives considered, concentrates on the recommended structure of a nationwide program for the coordination and integration of resource centers and bibliographic centers. As part of this design the nation was divided into a number of suggested bibliographic regions and delivery zones for the physical supply of requested materials. These regional groupings provide indications of the appropriate sizes for efficient operations, but the boundaries should in no way be interpreted as those that may be forced upon the library community. Various kinds and levels of services have been considered at each level within the program -- national, regional, zone, state and local. Estimated developmental and operational costs are shown along with a proposed schedule for the accomplishment of the recommended program.

In reading this report, the reader will note that the recommendations cover a wider set of library services than what is presently thought of as interlibrary loan. The report speaks to resource sharing at a level sometimes talked about but really never accomplished between independent libraries today. Interlibrary loan service today, for the most part, is not a service that library administrators view as a reasonable alternative for local ownership of materials. It is a marginal service that represents only a small fraction of library budgets. Because of this, the incentive to improve the current interlibrary loan service is equally and understandably small. Only with a system that allows library managers to realistically consider interlibrary loan as a viable alternative to ownership will there be a real payoff (see Williams⁷ study for rough indications of possible cost savings for serial publications). This requires a system that is greatly expanded from the currently perceived notion of interlibrary loan service. Such a service requires improved bibliographic control as well as better provision of materials. Development of real bibliographic control implies the creation of a system that will impact not only interlibrary loan but technical services also. In fact, it could well be the advantages of increased technical services that provide the initial incentive for a new system.

In discussions with librarians across the country, it was difficult not to come away with the impression that, perhaps, the most expedient solution would be for the federal government to step-in and reimburse libraries for interlibrary loans. While this may seem simple and attractive in the short-run, it does not appear to be a reasonable long-term solution. There is a real need, and it will become increasingly greater in the near future, for a more serious level of cooperation between libraries. Many

⁷ Williams, Gordon, Op. cit.

of the cooperative library ventures that began under the sponsorship of federal funds have ceased or the services have been greatly reduced. Cooperation that can only be fostered between libraries at the total expense of the federal government is questionable over the long run. The program outlined in this report seeks to provide a meaningful framework for effective federal involvement with state, local, and private sponsors for enhancing library services on a nationwide basis.

2.4 Overview of Report

The next chapter continues the study introduction with a discussion of further aspects of resource sharing. Following that, Chapters 4-8 present the proposed National Library Network, with network definition covered by Chapter 4, resource and bibliographic components of the network described in Chapters 5 and 6 respectively, and economics and implementation considered in Chapters 7 and 8. The Appendices provide detailed information supportive of the text and discuss the establishment of regions for network activity (A), Westat surveys of public and special libraries (B) and State Library Agencies (C), goals and objectives of the National Resources System (D), an analysis of unfilled requests in three states (E), and files of the National Bibliographic Center (F).

3. RESOURCE SHARING

The sharing of resources between libraries is a concept and practice that has been in operation in various forms for hundreds of years. Until recent years in the United States, resource sharing in the library community was primarily in the form of interlibrary loan. Librarians seeking to increase access to materials for their users sought other libraries that were willing to loan or duplicate the required materials. Over the years the ad hoc interlibrary loan system emerged as it is presently known.

With the more recent successful application of computer technology to bibliographic services, libraries are now sharing resources in this area. Shared cataloging, verification, and other bibliographic services are available to libraries from a common data base and centralized processing center.

As indicated previously, the primary purpose of this study was to consider and make recommendations on the role of resource centers and bibliographic centers as components of a national network of libraries and information services. The proposed development of a nationwide program for resource sharing raises the question as to the need for such a program, and given the need the best alternative to accomplish the program goals. In this chapter, pertinent previous studies will be briefly reviewed, the need for improved resource sharing considered, and selected alternatives for a nationwide program discussed. The chapter also mentions some of the major limitations, shortcomings, and remaining uncertainties concerning specifications for a nationwide plan.

3.1 Previous Studies

The study of possibilities for national solutions to some of the common library problems and to the coordination and centralization of duplicative library processes is hardly new. As the enormous increase in publication since World War II has created an ever widening gap between local collections and demand for materials at the local library, lack of access to resources has been an increasingly acute problem. Primarily because of the availability of funds, early emphasis was placed on improving access to scientific and technical materials.

In March of 1966, representatives of library associations and related groups were invited by the President of the American Library Association to meet and consider the recommendations set forth by the study for the Committee on Scientific and Technical Information (COSATI) of a national document system in science and technology.⁸ Consensus of the meeting participants was that a narrowing of national services to a limited subject area failed to consider the urgent needs for improved access to materials in all subject areas.

Representatives noted that needs for unified systems on a national basis had long been recognized, and pointed to programs in interlibrary loan, union catalogs, cooperative collection development, etc., as instruments for improving nationwide access to information. They stressed that further significant advances required substantial participation by the federal government.

This study group recommended establishment of a joint Ad Hoc Committee on National Library/Information Systems (CONLIS), which, with representatives from six major national library

⁸ Carter, Launor, et al., National Document Handling Systems for Science and Technology, New York: Wiley, 1967.

associations, met in Chicago in October, 1967. In its findings,⁹ the committee recognized the accessibility to information for all users in all fields of knowledge as a national interest; the impossibility of acquiring all materials required to satisfy local information needs at the point of use; and the necessity for a nationwide system that would provide both ready identification of materials needed and prompt supply of them in some form.

In view of the national interest identified by CONLIS, federal support for the development of such a system was considered an obligation as well as a necessity. The lack of the essential framework for effective federal action was noted, and the committee therefore recommended the establishment within the federal government of a single agency with the required responsibility as the essential first step. It was increasingly apparent to the library community that problems of access to information were incapable of satisfactory local solution, and that coherent planning on the national level was essential.

On September 2, 1966, by Executive Order of the President, a National Advisory Commission on Libraries was appointed to make a comprehensive study and appraisal of the role of libraries as resources and as centers for dissemination of knowledge, and to recommend methods for optimizing their effective utilization.

In its report¹⁰ to the President, July, 1968, the Commission echoed earlier reports in calling for the creation of an independent and continuing agency, "The National Commission on Libraries and Information Science," for library planning and

⁹ Improving Access to Information: A Recommendation for a National Information Program, A Report of the Ad Hoc Joint Committee on National Library/Information Systems (CONLIS), Chicago, Illinois: American Library Association, 1967.

¹⁰ National Advisory Commission on Libraries, Library Services for the Nation's Needs: Toward Fulfillment of a National Policy, July 1968.

coordination. The Advisory Commission again noted the need for national solutions to problems of bibliographic and physical access to materials in all fields for all users, noting the social value that would accrue to the people and culture of the United States from the adequate provision of information.

On July 20, 1970, a bill was approved creating the National Commission on Libraries and Information Science (NCLIS) as a continuing independent agency to research, appraise, and evaluate resources and services of current library and information science programs. The Commission was also charged with the development and coordination of plans for meeting national library and information needs.

In the Fall of 1970, with assistance and advice from 17 professional organizations, the American Library Association and the U.S. Office of Education sponsored a "Conference on Interlibrary Communications and Information Networks" (CICIN) to "explore and study the implications that would follow if a network of libraries and information centers were established in the United States."¹¹ In summarizing some personal observations after editing the Proceedings, Joseph Becker noted: "A national network of libraries and information centers appears to be a viable and attractive concept for the library and information science professions to pursue.... The individual is the one who will be served by a national network."¹²

A CICIN resolution on October 2, 1970 stated "That, as a matter of priority, the National Commission on Libraries and Information Science devise a comprehensive plan to facilitate the

¹¹ Becker, Joseph, ed., Proceedings of the Conference on Interlibrary Communications and Information Networks, Chicago, Illinois: American Library Association, 1971. p. 1.

¹² Ibid, p. 4.

coordinated development of the nation's libraries, information centers, and other knowledge resources."¹³ Among other recommendations supporting the resolution, the Working Groups at the Conference urged that "The National Commission designate or recommend establishment of a national center to coordinate the creation of standard bibliographic data records for all forms of material."¹⁴

In October 1973, following a series of meetings with representatives of several professional societies and other interested agencies in various sections of the country the National Commission in October 1973 presented a draft proposal on "A New National Program of Library and Information Service." This program, like the many others before it, recognizes the need for resource sharing to improve the availability of materials to users and notes that current computer and communications developments now make nationwide resource sharing arrangements feasible.

As stated in the draft report, "The purpose of a national network is to permit any citizen -- be he a businessman, researcher, scholar, or student -- in the public or the private sector to access the total knowledge resource of the country from his own physical location."¹⁵

¹³ Ibid, p. 5.

¹⁴ Ibid, p. 5.

¹⁵ National Commission on Libraries and Information Science, A New National Program on Library and Information Service (Draft proposal), October 1973.

Commitment to provision of such physical access to information resources through a national network carries with it a concomitant obligation to provide the necessary bibliographic access to the resources made available, or the advantages of this massive extension of local library resources will be much diminished if not wholly vitiated.

"It is safe to assume," reports Chapin, "that our libraries can provide more physical accessibility than they can bibliographic accessibility. The large number of journals and research reports for which we have no bibliographic access is scandalous. For all practical purposes many items on the shelves of our research libraries are not physically accessible to the potential user unless we have bibliographic access."¹⁶

While the above studies and planning have sought to address resource sharing on a broad basis, several investigations sponsored by the Association of Research Libraries (ARL) have focused on the improvement of the present interlibrary loan system. A plan was developed by ARL in 1970 for a series of proposed studies that would explore the problems of interlibrary loan and recommend appropriate solutions. The first ARL study sponsored by the National Science Foundation and conducted by Westat was a descriptive study designed to provide basic data on the magnitude, characteristics, and costs of academic interlibrary loans.¹⁷ Upon completion of this study, the Interlibrary Loan Study Committee suggested to ARL a number of important problems that remained unexplored and that required solutions for national planning. Their recommendations resulted in a second ARL study effort, funded by the National Science Foundation, to pursue an improved interlibrary loan system

¹⁶ Chapin, Richard E., "Limits of Local Self Sufficiency," In Proceedings of the Conference on Interlibrary Communications and Information Networks, Op. cit.

¹⁷ Palmour, et al., Interlibrary Loans in Academic Libraries, Op. Cit.

for academic libraries. This program consisted of three studies: an investigation of more equitable means for financing interlibrary loans, the determination of the feasibility of a national periodical resources system, and a study on the application of computers for an improved communications system between libraries for interlibrary loans. Commencing in December of 1972, the first two parts on finances and a periodical resources system were conducted by Westat, Inc.^{18,19} with the third part completed by Becker and Hayes, Inc.²⁰

In early 1973, the National Commission on Libraries and Information Science sponsored a brief investigation by ARL on the feasibility of centralized and regionalized interlibrary loan centers. The study,²¹ conducted by Rolland Stevens, had as its objectives: to identify the major problems of the existing interlibrary loan system and recommend approaches to their solution, and to provide the National Commission the necessary background information for a full-scale investigation of the development of a national center or a system of regional centers that would provide user access to library materials of all types not available locally. Stevens recommended that a national system for interlibrary loan be established with strong central planning and coordination but a highly decentralized service program. Such a national system was seen as consisting of area bibliographic centers, resource centers, and backup centers developed and maintained by the federal government.

¹⁸ Palmour, et al., Financing Interlibrary Loan Services, Op. Cit.

¹⁹ Palmour, et al., Access to Periodical Resources, Op. Cit.

²⁰ Hayes, Robert M., A Study of a System for Interlibrary Communications (SILC), Washington, D.C.: Association of Research Libraries, December 1973.

²¹ Stevens, Rolland E., A Feasibility Study of Centralized and Regionalized Interlibrary Loan Centers, Washington, D.C.: Association of Research Libraries, April 1973.

3.2 Need for Improved Services

Although there exists an almost universal agreement on the part of the library community on the need for an improved resource sharing system, it is difficult to quantify the level of need. Part of this difficulty stems from the lack of good measures on library outputs. The "value" of library service is a complex notion that does not lend itself to precise measurement. Consequently, library outputs are generally measured in terms of counts -- number of items circulated, number of reference questions answered, and number of interlibrary loans made. Quality of service is likewise a rather nebulous concept, normally measured in terms of inputs rather than outputs, e.g., number of professional hours devoted to a service and number of volumes available.

The inability to measure more meaningful outputs of library services does not preclude the necessity of estimating demand for these services. The purpose of this section is to speculate on the volume of loans between libraries in the current interlibrary loan system. Estimates of needs for materials through interlibrary loan are speculative, since relatively little coordinated collection of such data has taken place for all types of libraries on a national basis. Extrapolating from an earlier Westat study of academic interlibrary loan²², which was based on statistics reported for 1969-70, Rolland Stevens²³ postulated a total volume of interlibrary loan requests in 1972-73 of about 10,500,000 for all types of libraries.

²² Palmour, et al., Interlibrary Loans in Academic Libraries, Op. cit.

²³ Stevens, Op. cit., p. 62.

From loan patterns found in New York and Washington states, Stevens calculated that the volume of requests received by non-academic libraries was roughly four times (3.8) the volume of loan requests received by academic libraries. Multiplying the estimated number of requests received by academic libraries by this factor provided a rough estimate of total interlibrary loan requests. A refinement of that estimate was considered important to this study. A sample survey of public and special libraries²⁴ was made to solicit information on the level of interlibrary borrowing and lending and the perceived needs of these libraries. Data on borrowing and lending by federal libraries were determined from the 1972 Survey of Federal Libraries²⁵, although total requests made and fill rates for these libraries were not reported. Only very rough data on the interlibrary loan activities of the existing state libraries were available from the Westat survey. The primary difficulty was that many states now report summary statistics for the state network as a whole rather than for individual libraries.

An updating of interlibrary loan (ILL) statistics for academic libraries in a later Westat study²⁶, based on 1971-72 data, indicated that a substantial drop in lending by large private academic institutions had considerably slowed the rate of growth in interlibrary lending by academic libraries. It was estimated that a volume of requests of about 1,850,000 for the 1972-73 period was realistic for academic libraries.

²⁴ See Appendix B for more details on survey.

²⁵ Olson, Edwin E., et al., Survey of Federal Libraries, 1972 (Unpublished draft), For the Federal Library Committee, 1973.

²⁶ Palmour, et al., Access to Periodical Resources, Op. cit.

Based on the available data, Table 3-1 gives a rough estimate of the total interlibrary loan picture. The figures for the state libraries are the least reliable. On the basis of the data reported, it is estimated that approximately 4-5 million loans were made in 1972.

Table 3-1. Estimated volume of interlibrary lending in 1972 for all types of libraries

Type of Library	Loan Requests Received	Fill Rate	Total Loans Filled
Academic	1,850,000	68%	1,258,000
Public	2,235,000	52%	1,165,000
Special	387,000	81%	314,000
Federal	1,098,000	37%	735,000
State	<u>500,000</u>	<u>50%</u>	<u>250,000</u>
Total all libraries	6,070,000	61%	3,722,000

From Table 3-1 the six million loan requests would be the comparable estimate to Steven's estimate of 10,500,000. While the Steven's figure is probably high, the six million estimate is no doubt on the low side. A more reasonable estimate of total actual demand for interlibrary loan is probably 7-8 million requests for 1972. For purposes of estimated total demand for an improved interlibrary loan system, an estimate of current actual demand is only a starting point. If there were a fast dependable service, demand could be expected to grow rapidly, as has been the experience of MINITEX, NYSILL, Illinois and other interlibrary loan operations providing good service. Estimating the potential demand for a new or improved service is always difficult. What is the potential demand for interlibrary loan service in the U.S. assuming an efficient location and delivery system? The United

Kingdom provides one means of gauging the U.S. use of interlibrary loan. It is estimated by Line²⁷ that the total demand for interlibrary loan in 1973-74 will be 3 million in the United Kingdom. On a per population basis, the United Kingdom use of interlibrary lending is about 83 percent greater than the use of the service in the United States. This estimate was arrived at on the basis of 3 million loan requests and a population of 55 million people in the United Kingdom versus 6 million loan requests and a population of 200 million people for the United States. In other words, for every 1,000 persons in the United Kingdom there are about 55 interlibrary loan requests, whereas in the United States 1,000 people generate demand for about 30 interlibrary loan requests.

The United Kingdom is probably much closer to meeting their potential demand for interlibrary loan services because of their well organized and efficient services. It would not seem unreasonable to expect at least a 50 percent increase in the United States given an improved system. Such an increase would place total demand at around the ten million level in terms of 1972 figures.

The earlier Westat study of academic interlibrary loan²⁸ indicated that about 64 percent of requests for loans involving academic libraries were between libraries within a state, while approximately 80 percent of the total were between libraries within a defined region (although some differences were indicated by various regions). This geographic flow showed considerable differences by size of collection of the lending library, however, with substantially more of the lending of the largest libraries

²⁷ Line, M.B., Unpublished note, "The British Library's Lending Services in the Context of Interlending in the United Kingdom," British Library Lending Division, October 1973.

²⁸ Palmour, et al, Interlibrary Loan in Academic Libraries, op.cit.,p.35

going out of state. Public libraries have a higher likelihood of locating materials within the state, and from reports of state resource systems, it would appear likely that about 75 to 80 percent of total state needs may be met by a well organized state interlibrary loan (or resource sharing) system.

The 20 to 25 percent of materials needs unmet within the states represent the probable initial level of demand on a national network. On the basis of current levels, initial demand for the Resource System was calculated at about 750,000 requests (or approximately 15,000 requests per state). Development of the system projects a fill rate of about 70 percent within a resource zone, with approximately 75 percent of requests unfilled there supplied at the regional level. The requests unfilled at this level will be referred to national and international resource libraries, where it is expected that most requests will be filled for a total fill rate approaching 100 percent.

Interlibrary loan represents only one of a number of library services that could benefit from an improved national system. Another service that has great potential is cataloging. Kochen and Segur²⁹ estimated that, if the Library of Congress were to do all the cataloging, about \$0.5 million dollars per day would be saved by the nation's libraries.

While these figures for potential demand on an improved national system are only crude estimates, it seems reasonable in light of the current tight budgets that the library community will have to seek means for providing services more economically in the future. Few will argue against the need for some kind of national policy on library resources and services.

²⁹ Kochen, Manfred, and Segur, Bertrand A., "Effects of Cataloging Volume at the Library of Congress on the Total Cataloging Costs of American Research Libraries," Journal of the American Society for Information Science 21:2:133-39 (March-April 1970).

3.3 Alternatives for Improvement

The remaining chapters of this report describe a conceptual structure for the design of a national network of resource centers and bibliographic centers. Some exploration of how the recommended structure emerged is necessary. The investigation started with the concept of state, regional, and topical resource centers and regional bibliographic centers as components for a national system. Consequently, the study was based on the premise that the desired system would ultimately consist of these centers linked together in some meaningful patterns. The alternatives considered were various approaches to linking together of the resource and bibliographic centers.

The first alternative considered was a system of resource and bibliographic centers linked informally, not too different from the present interlibrary loan system in which the local library has the option to go directly to the resource library where the item wanted is thought to be available. Such informal alternatives offer little improvement over the present system.

The process of going beyond the local level for both location and physical access is best accomplished through a hierarchical network. This is even more evident with regard to bibliographic services. The application of computer technology will allow the development of required data bases by a few centers that can then be shared by a large number of libraries. The duplication and resultant high costs of technical processing activities are well known to the library community. Physical delivery of materials is already accomplished through hierarchical systems in a number of states.

One of the more difficult aspects of designing hierarchical networks is the determination of the level at which various functions should be carried out. A number of alternative designs were considered based on different services and functions at various levels of the network. One such alternative treated was a system with a single bibliographic center serving the entire country. Investigation led to the conclusion that this was too much of an undertaking for a single center.

The national plan that finally emerged and is recommended is a national library network with five operational levels -- local, state, zone, regional, and national. Some of the specific patterns of development outlined go beyond presently firm knowledge, and in some cases may suggest development in a direction opposite to that indicated by present data. The present data is frequently inadequate for reliable decisions that would be necessary if one wanted to be sure of choosing the "best" option by cost-effectiveness criteria. For example, if the criteria of speed of access, surety of access, and cost of access were adopted to compare various regional approaches, the solution might point to greater centralization than suggested in the recommended network. By combining the cost of collection development and maintenance with the cost of access and time of access, the ratio of total cost/time of access could be computed. It is presently uncertain that for most items (as opposed to most loans) the total cost/time ratio favors regional development rather than national development. Such analysis should be considered in determining the specific configuration of the network.

The approach taken was primarily one of attempting to account for current patterns of developments and offer plans that slowly draw them together into a meaningful network in the future.

4. ORGANIZATION AND FUNCTIONS OF A NATIONAL LIBRARY NETWORK

4.1 Definition of the Network

In its draft proposal of October 1973, the National Commission on Libraries and Information Science has stated:

"Libraries and information centers in the United States are not developing according to any national plan, and consequently, from a systems viewpoint, their growth continues to be uneven and uncohesive. A new philosophy of library and information service is needed, one based on a common sense of direction and purpose and a commitment to national cooperative action."³⁰

This report recommends development of a National Library Network (NLN) within this context, as a federal commitment to partnership with all levels of the information community in the planning and funding of systems to permit the regular extension of services beyond the jurisdictions now supporting them. It is not the function of the suggested network to control information or to force library development along nationally preordained lines; rather, it is the purpose of the design to create an improved environment for realization of commonly defined local, and state national goals of service to users nationwide.

Development of a National Library Network requires coordination by a national library agency with the designated functions of planning and coordination of all library and information activities at the national level. The National Library Network is visualized as an independent unit under the general direction of this "national library coordinating agency." It is expected to utilize those developments in computer science,

³⁰ National Commission on Libraries and Information Science, Op. Cit.

telecommunications, and microtechnology which make development of national systems feasible. Creation of a system permitting on-line access to computer stores of bibliographic data, as well as to resource sharing and technical processing services, is projected.

Development of the NLN is predicated upon expansion, refinement, and coordination of existing services and cooperative associations.

4.2 Goals, Objectives, Functions and Organization of the National Library Network

Goal 1: To provide all users, wherever located, reasonable equality of access to needed information resources.

Objective 1: To develop a network of state, regional and national resource libraries which will provide guaranteed access to recorded materials of all types in all languages. (The Resource System)

Objective 2: To develop bibliographic capabilities for the rapid identification and location of needed materials. (The Bibliographic System)

Objective 3: To develop the necessary channels of communication for access to the services and materials made available by the network. (The Communications System)

Goal 2: To make possible more cost-effective utilization of total library resources.

Objective 1: To reduce unnecessary duplication in cataloging and to develop more efficient systems for technical processing.

Objective 2: To enable libraries to utilize personnel, particularly professionals, in a more service-oriented manner.

Objective 3: To make possible the development of collections based on volume of use of materials at all levels of the network.

Goal 3: To make systems developed responsive to needs for change.

Objective 1: To develop a monitoring system on all levels.

Objective 2: To provide feedback to local libraries, library systems, and state networks, which will enable these units to make effective collection and service decisions.

Objective 3: To maintain viable systems by utilizing information collected to provide for orderly change and evolution relevant to developments in the information community.

Goal 4: To support the library community as the channel of services to the user.

Objective 1: To provide leadership, direction, and channels for cooperative planning and coordinated services by all segments of the information community, in order to meet the information needs of users.

Objective 2: To promote relevant educational and training programs for staffs and users to permit most effective use of the systems and programs developed.

Objective 3: To sponsor continuing research in relevant areas.

Objective 4: To publicize and promote the network and its services.

The Resource and Bibliographic Systems of the National Library Network, with which this study is concerned, are designed to provide improved access to all commonly used materials in all formats, to coordinate bibliographic access to these materials, and to provide centralized cataloging and technical processing services which could reduce costly duplications of effort. The Communications System is expected to provide the necessary channels and linkages between all segments of the network. These are

feasible first steps toward meeting the needs of libraries nationwide, and enabling them to extend their abilities to serve local users.

The National Library Network is an organization of interconnected resource and bibliographic systems designed to provide bibliographic and physical access to materials, and other support to the information community. Suggested organization of the network is displayed in Figures 4-1 and 4-2. National activities in such areas as planning, research and development, coordination among elements of the information community, and education, are anticipated functions of the national network. Principal operational elements include the Bibliographic System, the Resource System, and the Communications System. The National Library Network, as shown, includes connecting channels of communication between the resource and bibliographic systems at all levels.

The focus of the network is on the support of library activities and the provision of library materials at the regional and subregional or zonal levels through Regional Library Support Centers (Figure 4-3), but components of the system are also found at the national level and at state and local levels. Particularly important in the bibliographic system is the role of the national level components in developing and supporting various data bases and bibliographic services. In the resource system, materials supply and collection development activities will be found at all levels, with the local library and state library system retaining, as they currently do, primary responsibility for the provision of library materials to users. Thus the levels of support provided by the bibliographic and resource systems respectively show the inverse relationship suggested by Figure 4-4 with national files serving as the base for the bibliographic system and resource support building upon zonal delivery levels. The primary focus of this report will be on development of the National Resource and Bibliographic Systems at national, regional, and zonal levels with suggestions for their coordination with existing state and local library activities.

Figure 4-1. Organization of the National Library Network

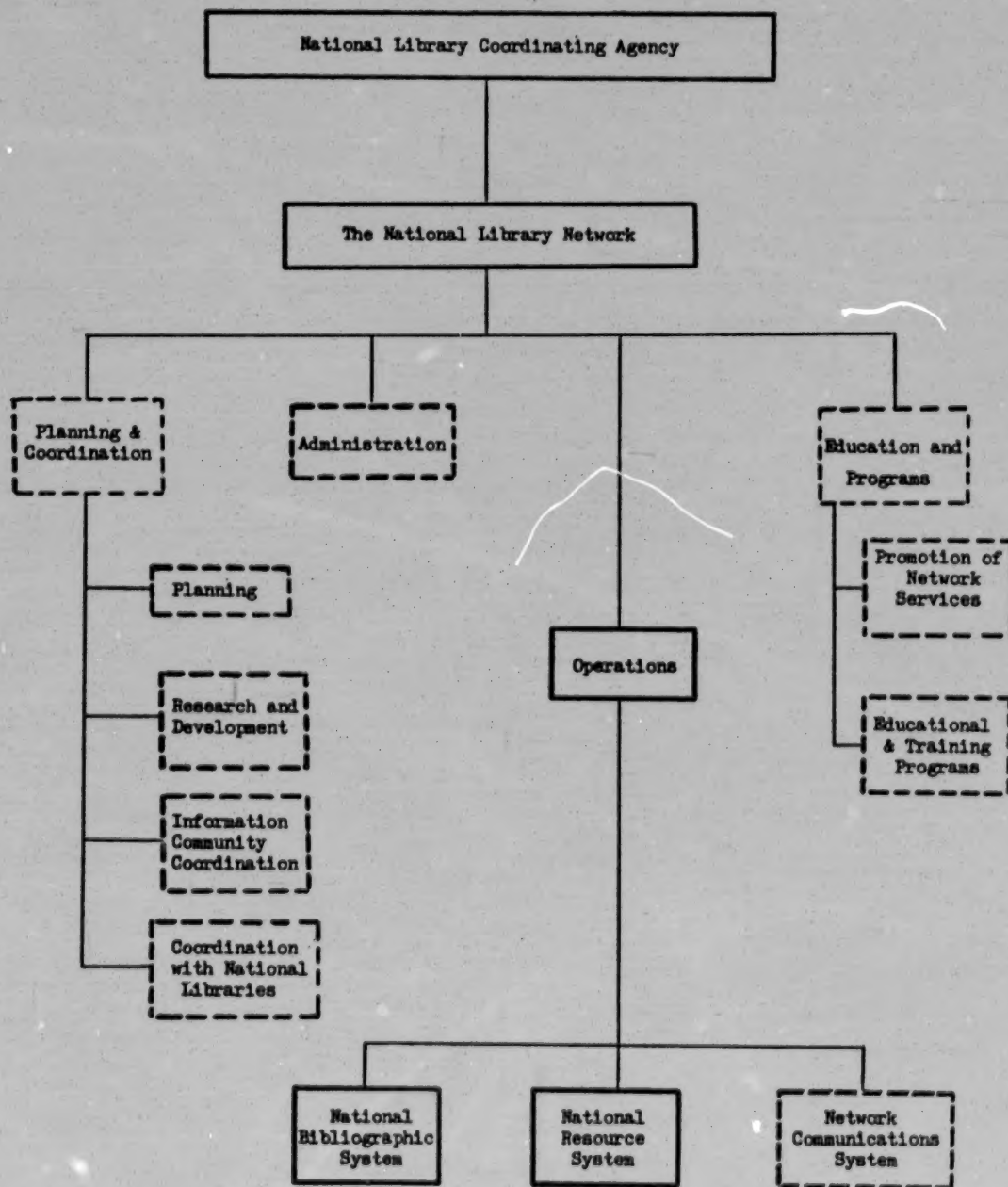


Figure 4-2. Organization of National Network Systems
(National Level)

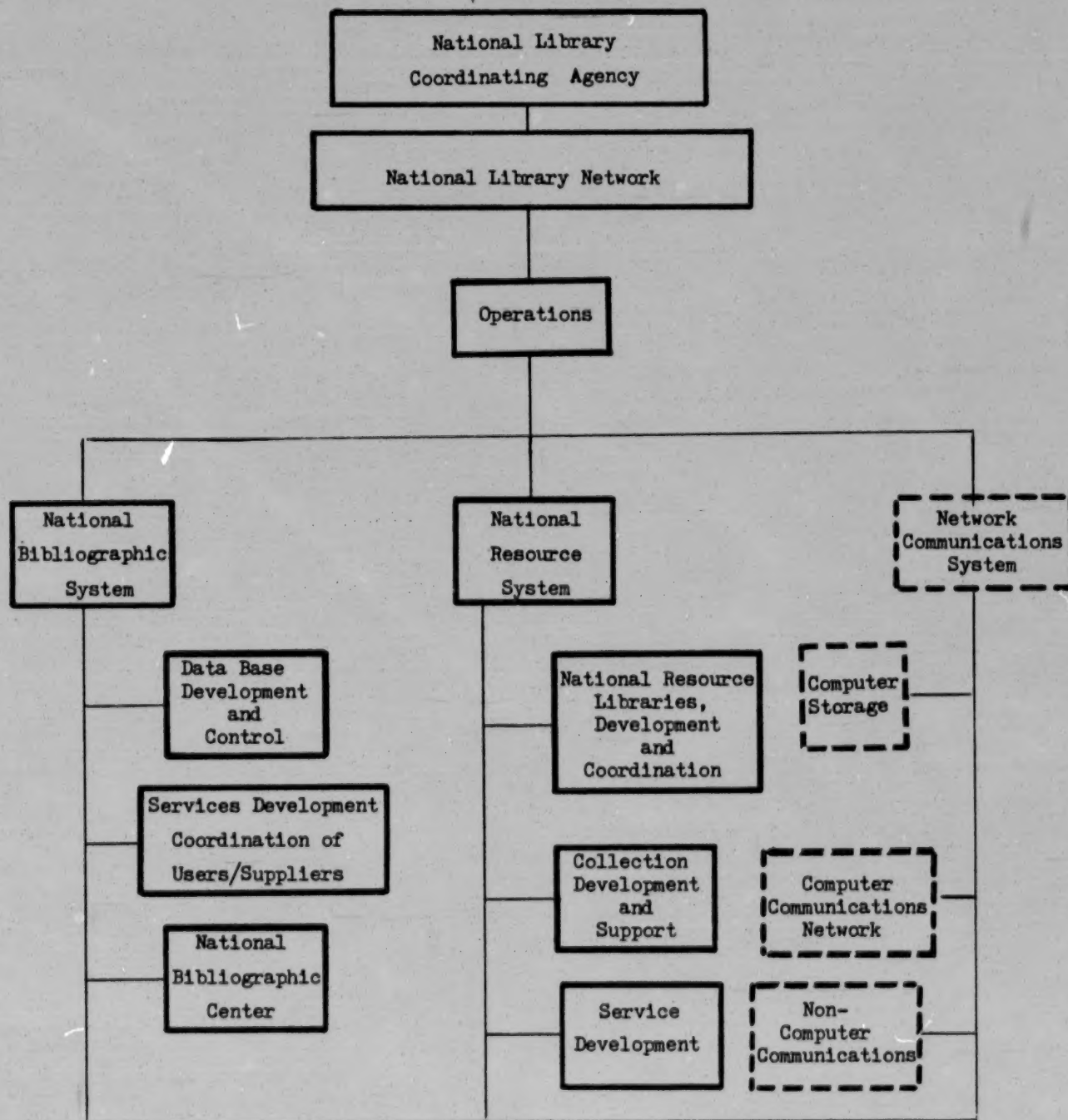
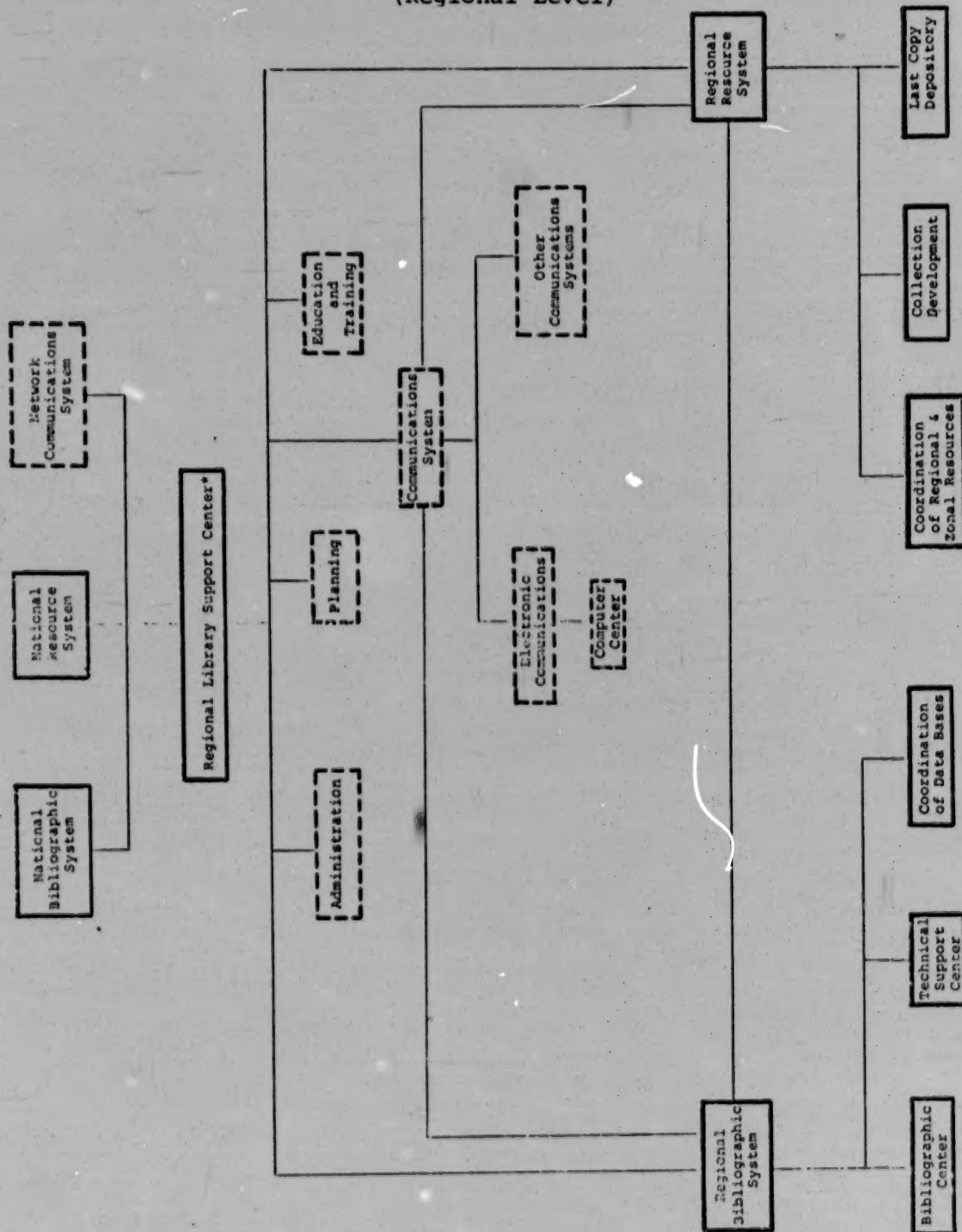
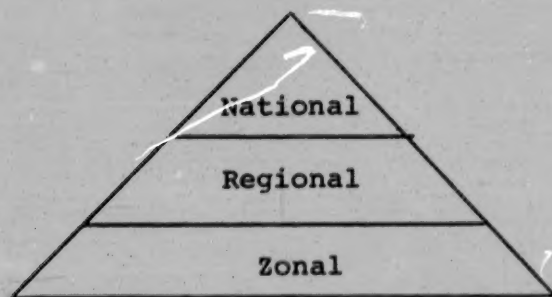


Figure 4-3. Organization of National Network Systems
(Regional Level)

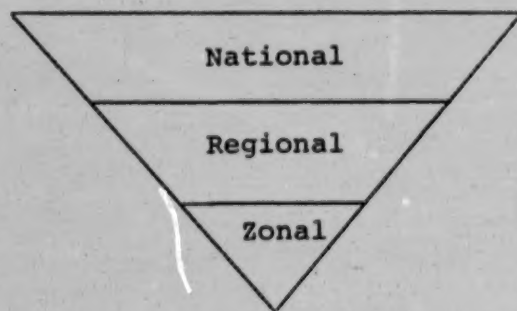


*Replicate for each region

Figure 4-4. Relationship of levels in the Resource and Bibliographic Systems



Resource Support Levels



Bibliographic Support Files

The network is based on a hierarchy of service points, building from local libraries through state networks, resource zones and regional facilities at the multi-state level, to the supportive services of the national level (see Figure 4-5). Development at the multi-state level is predicated upon the establishment of regions (four are suggested -- see Section 4.6) through which resource support, bibliographic and technical processing services, educational programs, and such other services and programs as are developed at regional and national levels can be channeled. Each region would encompass two or three multi-state resource delivery zones, each of which would coordinate the resources of designated state resource centers (state nodes) within the zone. These state resource centers would function as the ultimate resource in the intrastate systems, providing to libraries within the state the materials needed which are not available locally or at lower levels within the systems. In addition, as state nodes of the resource zone, they would operate as entry points for the states into the multi-state resource system, by providing the first level of interstate resource support (see Figure 4-6.)

The regional or multi-state level of the network is seen as the basic operational level. Control here would be vested in representatives of all components of the information community, including users, within the region. The regional designations discussed in Section 4.6 are suggestions based on current patterns of association and realistic alignments of population, resources, and other factors. Adoption of regional boundaries must, of course, depend upon commitment of individual states to the development of the suggested regional cooperative grouping, or to such other alignments as they can show to be more feasible.

Control at the national level should be vested in representatives of all national components of the information community and include representation from the regions. Supportive services

Figure 4-5. Structure of the National Library Network (A)

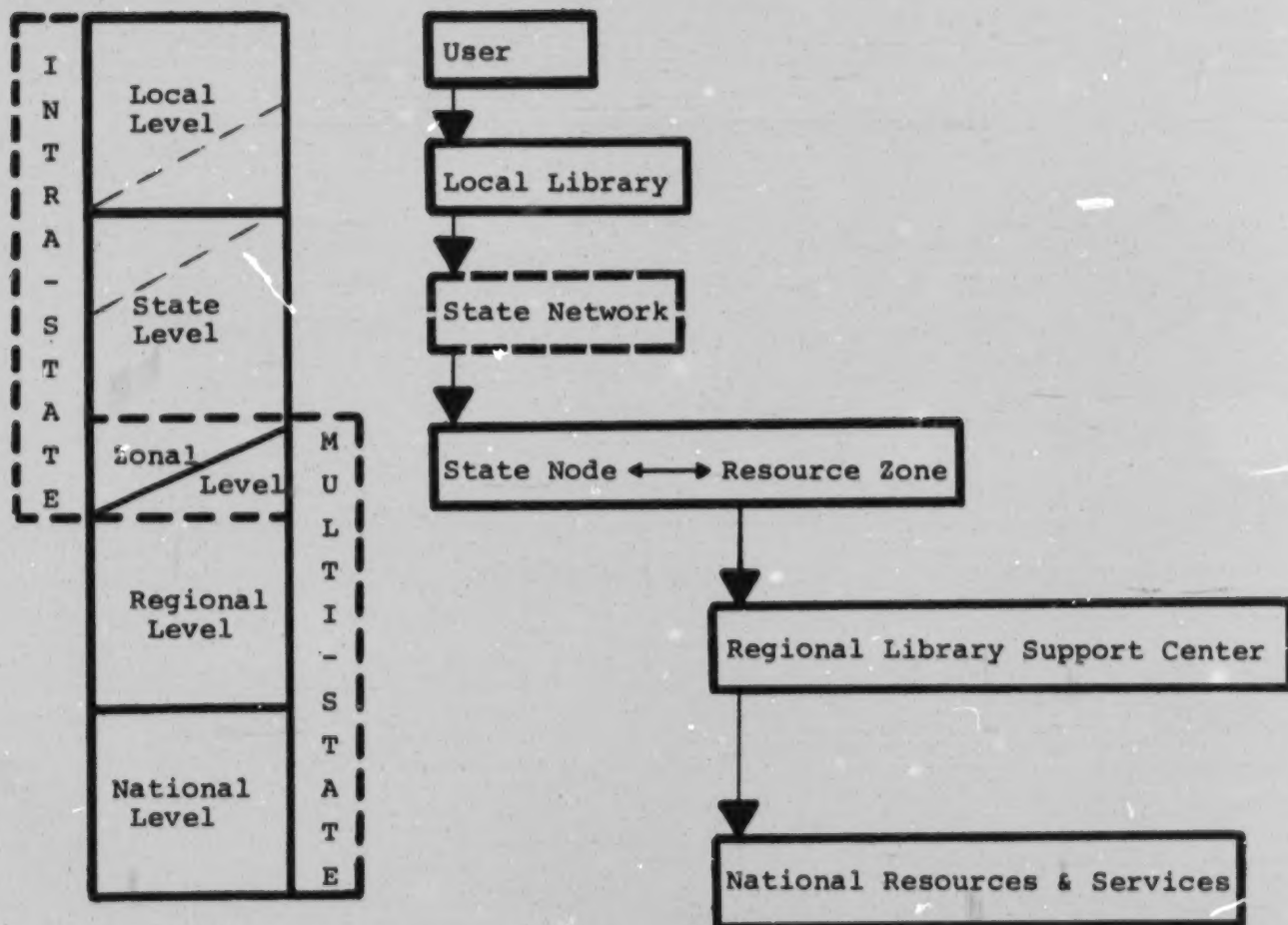
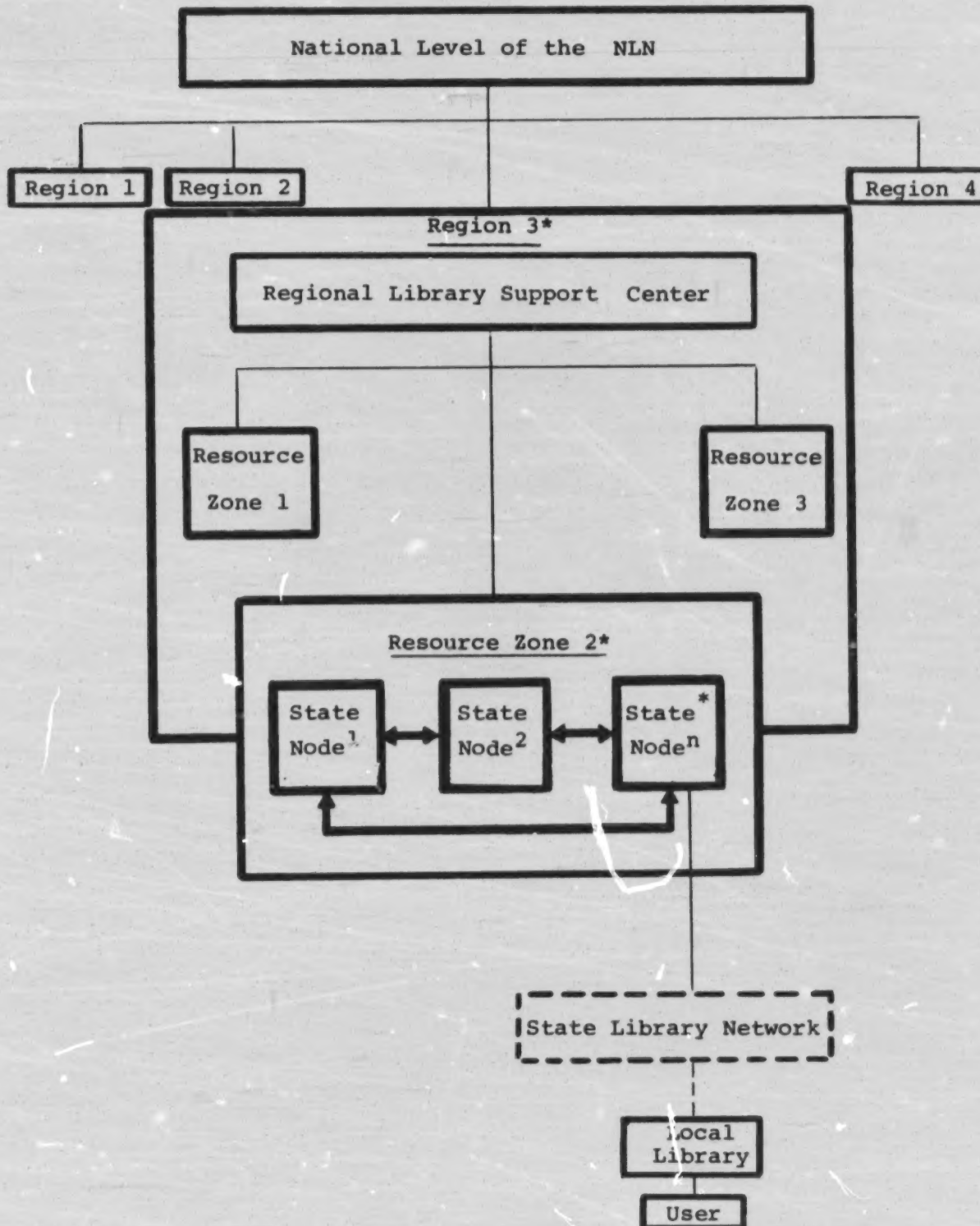


Figure 4-6. Structure of the National Library Network (B)



*Replicate for each region, zone, state.

at the national level are expected to be those determined to provide maximum utility to the library community as the channel of services to users. Development at all levels should be evolutionary, based on responsiveness to demonstrated local needs and to changing patterns of service and technology.

4.4 User Access to the Network

Although the ultimate purpose of the network is service to the individual user, it is expected that this service will be channeled through the local library. In early stages of network development, user access will be provided only through the local library, which, after exhausting local resources and service capabilities, will transmit requests for network services or resources through established channels. Eventually, however, some direct user access to reference or information files developed may be feasible.

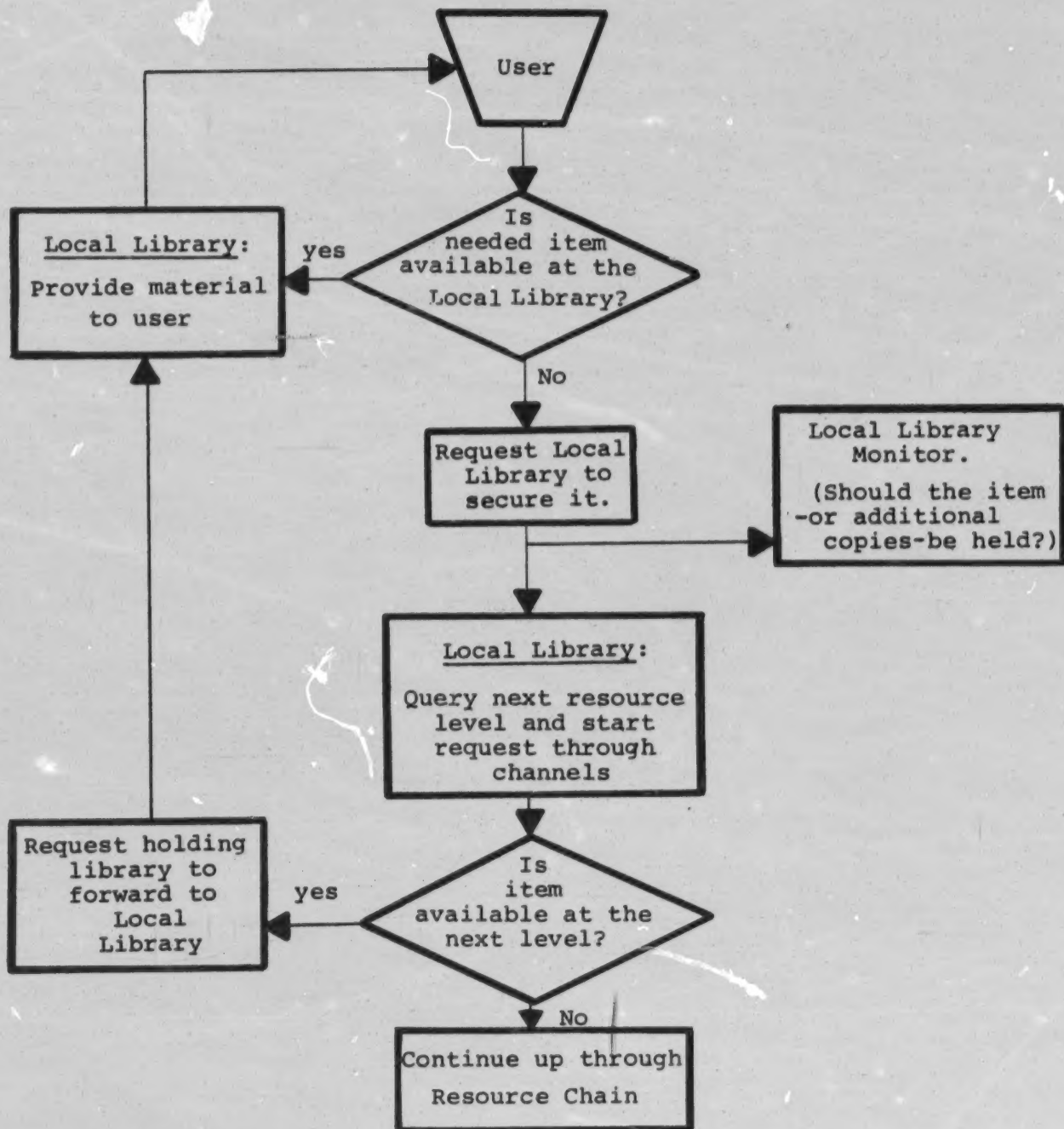
Educational programs and promotions aimed at improving individual utilization of network services, as well as of the comprehensive volume of information made available through them, have early priorities.

The routing of a user request for an identified item of recorded information is outlined in Figure 4-7.

4.5 Role of the NLN in Relation to Local and State Libraries Systems, and Networks

The NLN is designed to support local libraries and their operations. The directness of this support will vary with regional patterns of communications developed by the regional representatives, and within these regional parameters by intrastate developments within

Figure 4-7. Initiating a Request for an Identified Item



the states included in a region. Although multiple communications nets are envisaged (telephone and teletype as well as the on-line computer networks), the basic flow of services will be via the cathode ray terminal (CRT) of on-line computer networks, with libraries utilizing on-line terminals enjoying direct access to bibliographic and technical processing services.

Libraries without terminals will use other means of communication for requesting services from the first higher level in the hierarchial system capable of channeling them to the requesting library. It is recommended that at least one terminal access point be designated in each state for libraries without facilities. In addition, it is recommended that, when feasible, a state service facility be developed or designated to deliver or channel appropriate supportive services to smaller libraries and systems within the state. Where no other facility is available on a lower level, bibliographic and technical processing supportive services will be provided directly to libraries from the regional library support center.

Although all terminals will permit reading of on-line data bases, access to the resource system will be hierarchial, with normal channels of access prescribed by the state and region. Some exemptions from normal channels should be made, however, for very large research and public libraries, and for facilities with very specialized materials needs not normally fillable through channels. These libraries should be permitted to forward materials requests directly to locations within the region (as determined from an on-line catalog file) or to the Regional Bibliographic Center for materials for which no regional on-line location information is available.

Patterns of access within local networks or systems will be determined by the local network. Unfilled requests entering the resource system, however, will utilize state and regional network channels. In each region, a catalog file should provide

locations for materials shared in a local network and would be available to any library with a terminal. Where the size of libraries in a local network or system makes general utilization of terminals unfeasible, a single terminal at the local network headquarters might be utilized to provide location information to all network members, as well as to provide whatever level of NLN services is possible at that level.

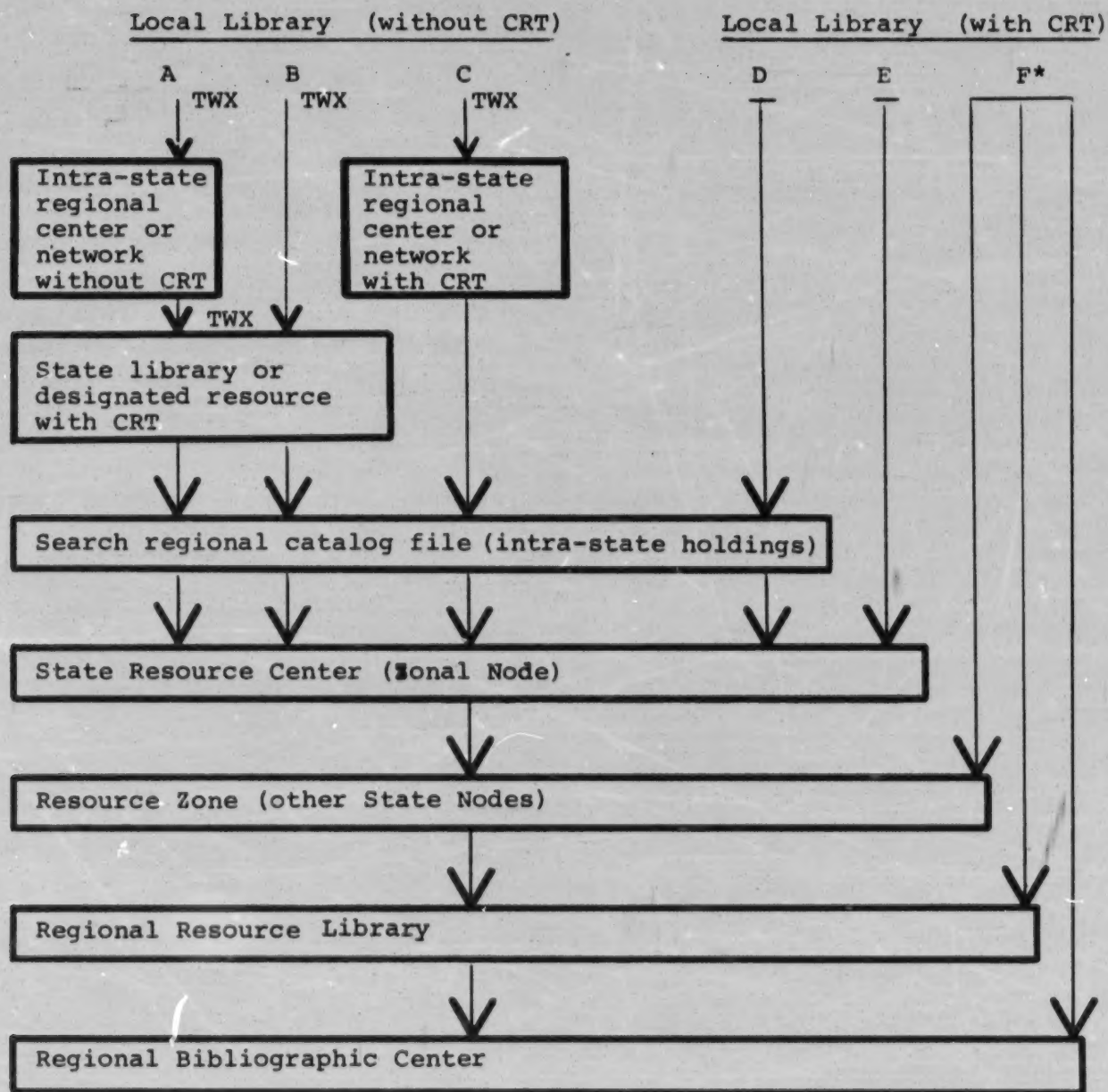
Figure 4-8 shows possible alternative routes of access for utilizing the Resource System. All requests for loans of materials not available within the region will be transmitted to the Regional Bibliographic Center. The flow chart in Figure 4-9 follows a request through the entire NLN Resource System.

4.6 The Geographic Divisions of the Multi-State Level: Regions and Zones

The design of the National Library Network postulates the establishment of a hierarchical system of large multi-state regions with both resource and bibliographic support to libraries and of smaller multi-state zones for resource development and delivery. Identification of these geographic divisions, which is discussed in greater detail in Appendix A, should be made with reference to the following general criteria:

- a. Bibliographic services should be associated with an area large enough to support the necessary equipment and staff requirements and to provide an adequate data base.
- b. Resource-related services should be associated with an area large enough to meet a substantial percentage of needs but small enough to facilitate cooperative collection development and rapid delivery.
- c. Areas identified should have some degree of similarity and a potential for mutual support.

Figure 4-8. Alternative Routes of Access - Resource System



*Options for designated libraries exempt from normal channels.

Figure 4-9. Following a Request through the Resource System of the NLN (Page 1)

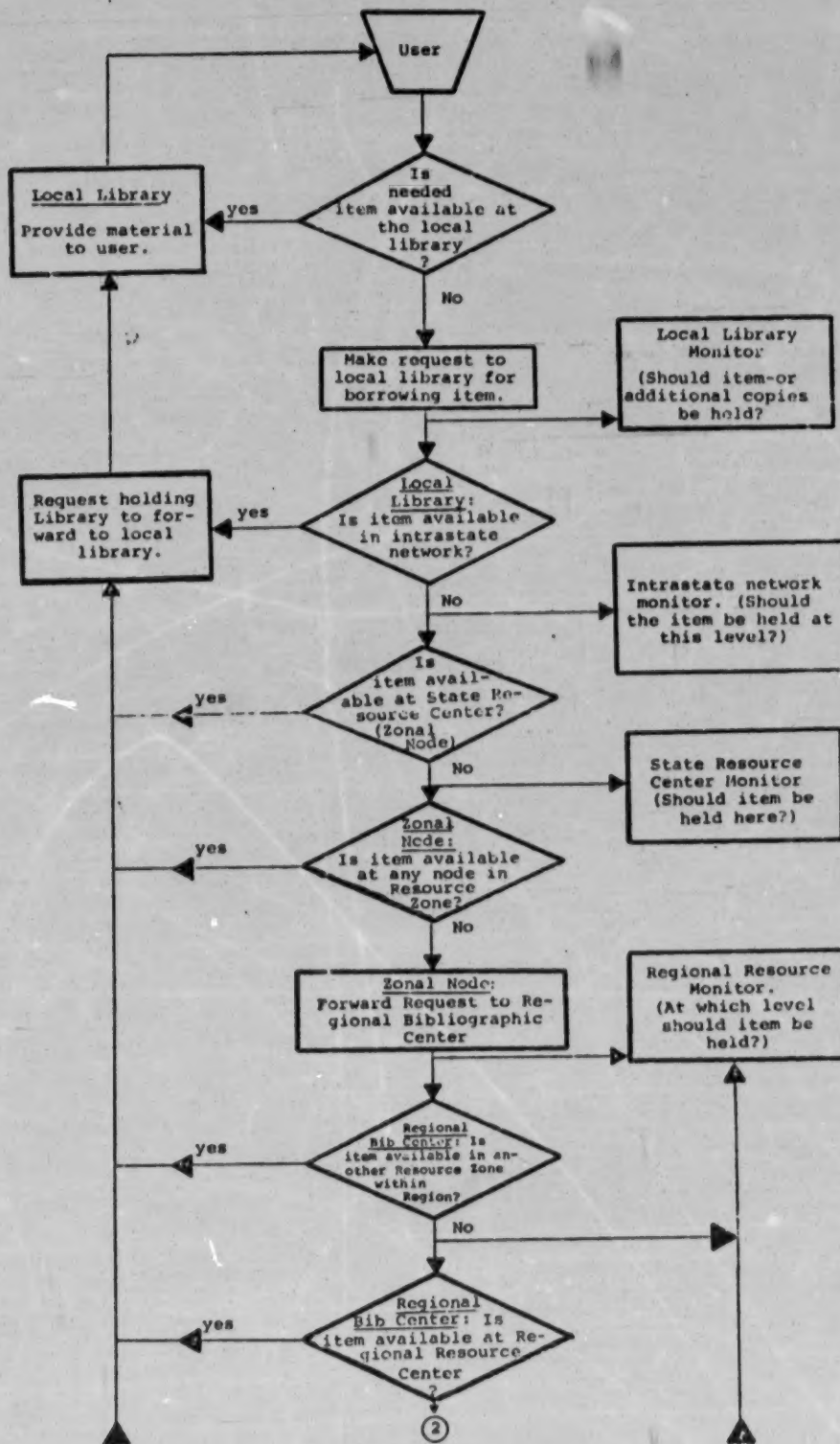
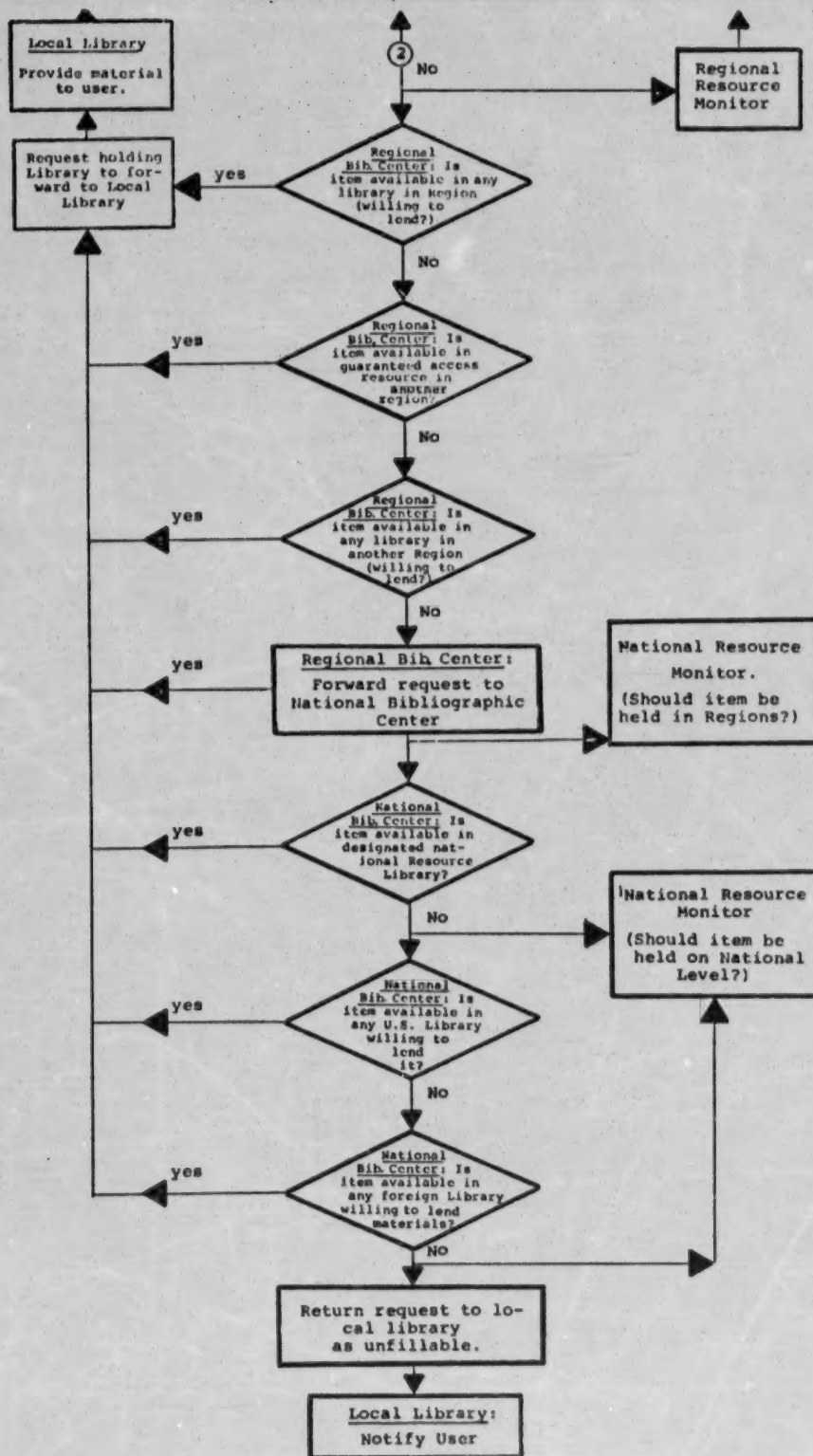


Figure 4-9. Following a Request through the Resource System of the NLN (Page 2)



Based on these criteria, two alternate schemes for regionalization, shown in Figures 4-10 and 4-11, were developed. These are suggested as a basis for discussion only, since the actual divisions implemented must necessarily be a result of a fuller explication of the functional requirements for the various system levels and of cooperative efforts of state library agencies guided by the national library coordinating agency.

4.7 The National Level of the NLN

While local, state, zonal, and regional levels of the network are involved in providing, channeling, and delivering services to libraries and users, the primary function of the national level of the network is the development of the programs and services to be made available at lower levels. This requires substantial coordination of activities of a wide variety of elements of the information community, including the national libraries and the "private sector."

4.7.1 Role of the National Libraries in the NLN

The Library of Congress (LC), although generally grouped with the two national libraries (the National Library of Medicine (NLM) and the National Agricultural Library (NAL)), is, in fact, not a national library. This factor necessarily limits the leadership role of LC in the provision of national services. Because of its comprehensive collections, however, the Library has become a hub for bibliographic activities and performs many common processing services for libraries. Although the comprehensive collections of the Library of Congress are important to development of the Resource System, the need for coordination and incorporation of some of the LC bibliographic programs in the Bibliographic System of the network would appear most critical, since it is in this area of bibliographic control that LC has had

Figure 4-10. Map A - a Scheme of Regions and Zones for the Resource and Bibliographic Network

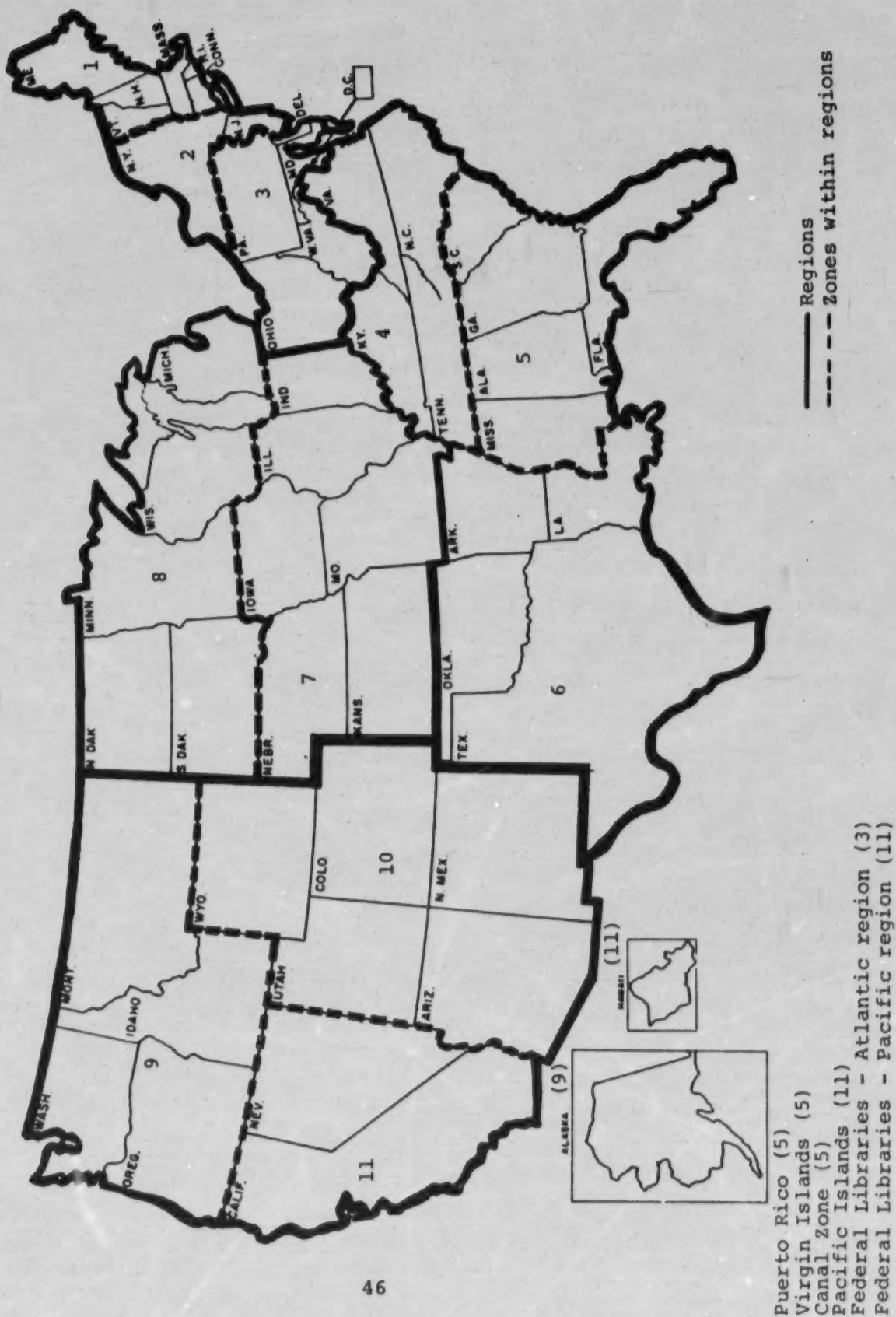
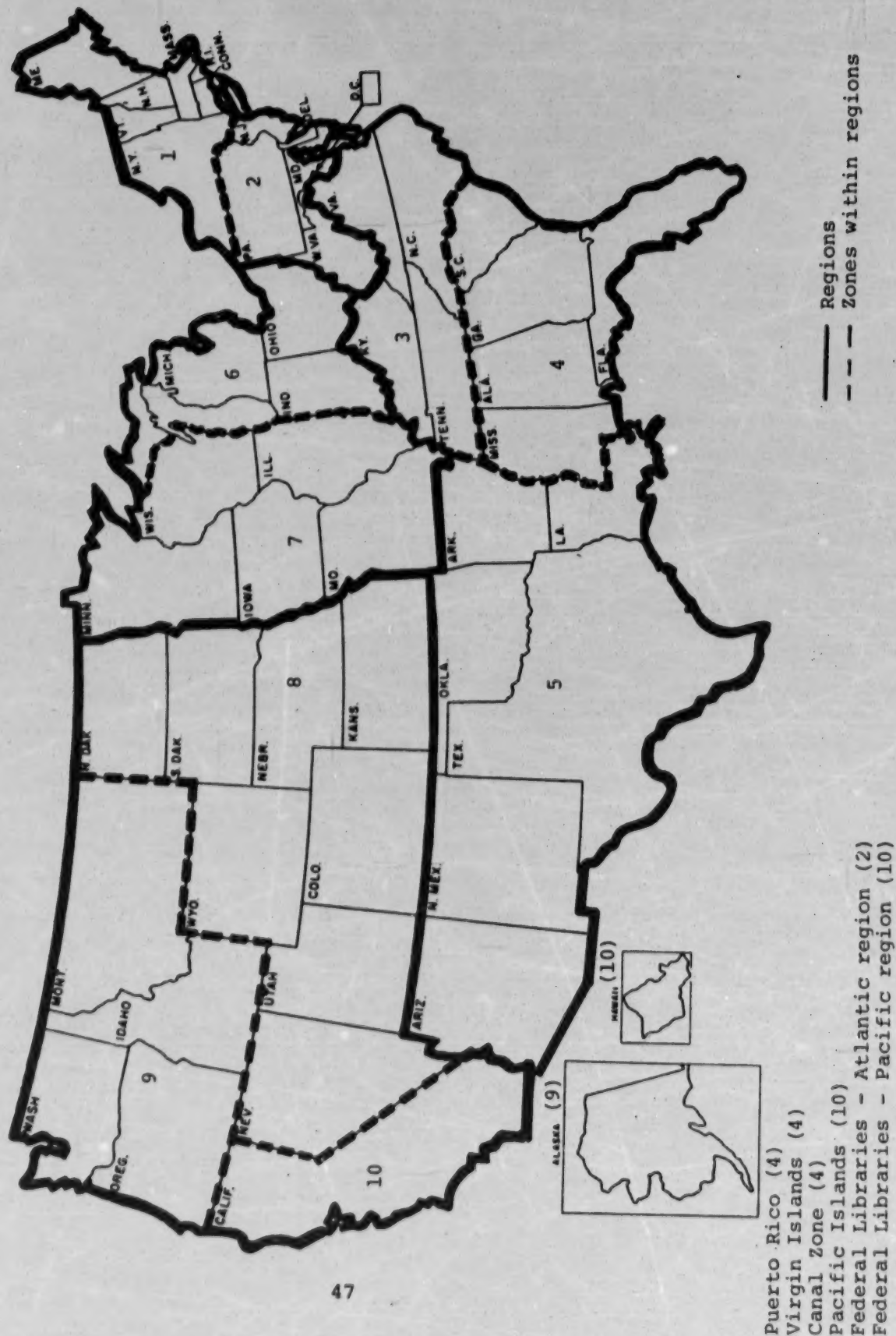


Figure 4-11. Map B - a Scheme of Regions and Zones for the Resource and Bibliographic Network



its greatest impact on American libraries.

Many of the large libraries in the United States utilize the LC classification system, and the LC card distribution system or other LC source cataloging information is utilized by even more. In recent years, Cataloging in Publication (CIP), which provides cataloging data within published materials, has provided another service for library catalogers. In addition, the National Serials Data Program (NSDP), which LC is sponsoring in coordination with NLM and NAL, is moving toward improved national serials controls, and, by incorporating international requirements for serials data, toward international standardization for serials records.

Of greatest potential impact, however, is the LC MARC (Machine Readable Catalog) Program which has developed a format for machine transmission of the full bibliographic description required for a variety of bibliographic services. A limited number of records of LC cataloged items have been distributed on magnetic tape in this format, to subscribing libraries or other facilities. These tapes have provided the basic initial bibliographic data base for most computerized cataloging programs. Development of the MARC data base as a comprehensive, centralized, bibliographic data file is discussed in Chapter 6.

Clearly, the role of the Library of Congress in providing access to its materials and services through the National Library Network is an important one and requires coordination at the national level. In addition, some legal definition of its role and responsibilities would seem necessary; it is suggested that consideration be given to recommendations to Congress for designation of the Library of Congress as a national library, in order to insure a broad national mandate for service.

The two designated national libraries, the National Library of Medicine (NLM) and the National Agricultural Library

(NAL), are already providing bibliographic and resource support services on a national level for specifically defined user groups. Coordination of these programs within the NLN framework should permit development of simplified channels of access to all materials and services for all users. Specifically, coordination of the machine readable data bases of NAL (CAIN - Cataloging and Indexing) and NLM (CATLINE - cataloging on-line, and SERLINE - Serials on-line) with the LC MARC data base should be considered, to permit development of a single cataloging source for all materials. In addition, development of secondary bibliographic tools for identification of periodical articles, research and government reports, and other non-book print materials, should insure inclusion of the CAIN indexes and abstracts for agriculture, and the medical abstracts and indexes of NLM's MEDLINE.

4.7.2 Coordination with the Private Sector

Among the profit-making and not-for-profit organizations comprising the private sector are included publishers, vendors of published materials, information subscription agencies, reprint companies, indexing and abstracting services, the data base industry, on-line computer retrieval services, and many others. These commercial services represent important elements of the total information community. A viable network must insure the cooperation of all elements, and an identification of the shared interests which the network should reflect. In addition to providing leadership and coordination of interchanges between public and private sectors of the information community, the network should support development of coordinated programs which can provide improved access to materials and services.

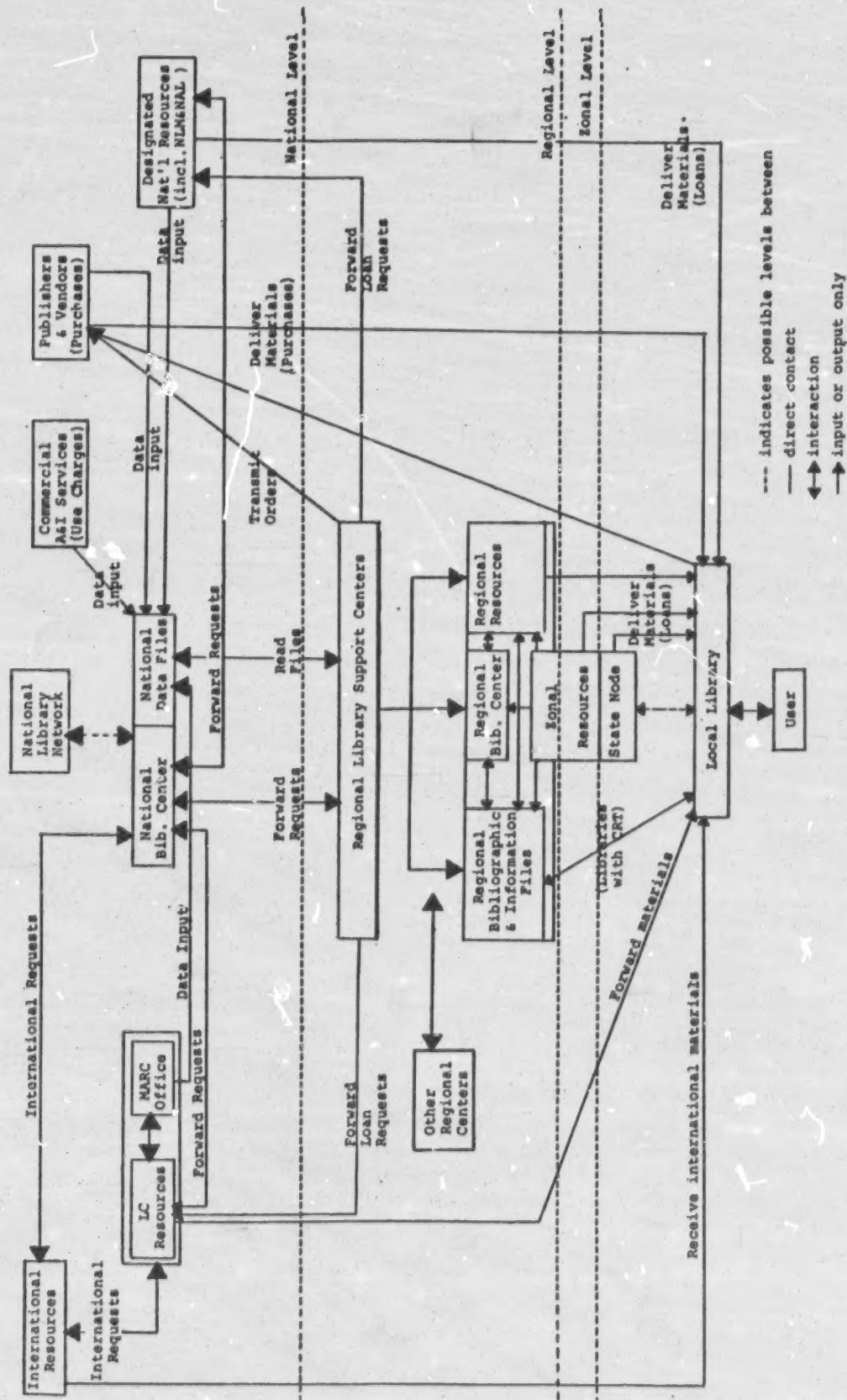
Two suggested on-line services which could effectively channel access to essential commercial services are the Interactive Order File, which would permit on-line ordering of library materials and commercial processing of them by publishers and vendors, and the Reference Files, which would allow on-line access

to government and commercial indexing and abstracting services, as well as coordinated off-line searching.

4.8 Channels of Communication

The multiple functions and levels of the National Library Network will require well-defined communication channels. While channels may vary somewhat from region to region, and within regions from state to state, overall patterns will join all elements of the community in workable relationships. These patterns of communications are suggested in Figure 4-12. Design of the Communications System required to provide these channels is not a part of this study.

Figure 4-12. Communications Patterns, National Library Network



5. THE RESOURCE SYSTEM

5.1 Introduction

Constituting the National Resource System will be a hierarchical network of resource libraries providing access points for all libraries and library users to an exhaustive collection of materials, supported by an effective system of delivery.

The resource system will include components on the local, state, zone, regional, and national levels, with primary focus on organization within zones and regions. Flexible routing patterns and varied channels of access will insure effective utilization of network resources.

Within each zone, specified resource centers will provide general resources and access will be through structured channels using present interlibrary loan (ILL) request methodologies, through the System for Interlibrary Communications (SILC), or through an on-line circulation file for materials available. Materials will be provided to libraries within the zone, and secondarily to libraries within the region and in other regions. Other libraries within a zone may be designated as resource libraries and will play a lesser role in the provision of materials within the zone, possibly by serving in a backup capacity. Zone activity within a given region will be coordinated at the regional level, which will also provide additional services such as monitoring unfilled requests and provision of a last copy depository for materials infrequently used by libraries within the region. Regional level activities will be developed jointly with regional bibliographic services, and routing of requests beyond the zone level will be facilitated by the bibliographic network.

On the national level, specialized resource libraries will provide materials as part of the resource hierarchy. Periodical materials will be supplied through the network primarily by another national level component, a National Periodical Resources Center. Coordination of national level and all system activities will come from the National Library Network.

Before proceeding to a description of the individual components proposed for the National Resource System, it is important to establish, as a foundation, present trends in resource sharing activity and the goals against which future development must be measured. These areas are covered in Sections 5.2 and 5.3 respectively.

5.2 Current Developments in Resource Sharing

Inventories of multi-state and state networks compiled by Westat (see Appendix C) show some 187 such systems, with more than 80 percent of them performing interlibrary loan service. Other systems provide services--communications, verification of citations, and location of materials--closely related to, and supportive of, interlibrary loan. Overall, the picture which emerges is that of a large number of disparate systems created in acknowledgement of a need for cooperation and resource sharing but without the common framework which would establish the goal of each system in relation to other systems and would provide the means for nationwide, non-duplicative provision of ILL services.

Existing systems of interlibrary loan, both regional and state, and the resource libraries which support them will play an

important role in the future development of resource sharing activities. Within the framework of the National Resource System, existing multi-state networks would serve as the basis for regional and zonal development. State systems will continue with many of their present activities, with services added or modified in view of provision made at other network levels. Individual libraries serving as major sources of ILL materials today are certainly prime candidates for designation as Resource Libraries in the network, with compensation given for services provided.

It is from these, and other individual libraries that the network will be built, for they will both serve as Resource Libraries at each of the various system levels and provide bibliographic and other services at these same levels. Criteria for selection of these key libraries will necessarily vary according to the tasks to be performed and so are discussed individually in the sections dealing with each level of the National Resource System. An important criterion for all of the initial Resource Libraries, however, should be -- beyond an appropriate collection -- willingness and proven capability to serve. These general criteria have led to the identification of a number of libraries which might be candidate Resource Libraries:

Zonal Resource Centers

Initially State Resource Centers only, as
identified by the states

Regional Resource Libraries

Columbia University
Philadelphia Free Library
Yale University
Duke University
University of Florida
Houston Public Library
University of Michigan
Milwaukee Public Library

University of Minnesota
University of Illinois
University of California at Berkeley
Denver Public Library
Seattle Public Library
University of Washington

National Resource Libraries

The Library of Congress
National Agricultural Library
National Library of Medicine
The Center for Research Libraries
Harvard University
New York Public Library
University of Texas
Stanford University

The libraries listed combine, according to data collected by Westat in various studies, large collections with high volumes of inter-library loan transactions; the Regional Resource Libraries suggested span the identified regions. The list is intended only to be suggestive of the sorts of libraries which might appropriately be interested in serving as Resource Libraries, if invited. The list is by no means exhaustive and other libraries not shown are clearly qualified as Resource Libraries.

The individual libraries designated as Resource Libraries at each level will perform services within the framework of the National Resource System. Like these services, organizational development at each level will frequently be based upon existing activities. At the state level, current systems may continue essentially as they are or be appropriately expanded or modified. Some (see Section 5.5.2) will serve as models for development in other states. In each state, one library or a combined group of libraries will serve as the link to the zonal, regional, and national levels of the National Resource System.

It is important to note, in statewide systems as well as in all the proposed network components, the necessity for providing

access to all libraries, including all of the various types. This will require perhaps the most significant modification of the existing systems.

Development plans suggest that zones initially be comprised of state systems with their Resource Libraries, perhaps building to some extent on existing agreements between two or only a few states. Such systems are listed, when known, in the inventory of state and regional cooperative activities in Appendix C. With some noteworthy exceptions such as the MINITEX-WILS and the New York-New Jersey agreements, these activities are of a highly specialized nature and of limited import for zonal activity. Activities involving more than a few states, are, in general, seen as the basis for regional rather than zonal development.

Networks identified as potentially relevant bases for regional development (also referred to in Appendices A and C) include not only networks providing interlibrary loan services directly but also those which have performed a regionalization function with regard to other library services. Seven such major networks were identified. The Bibliographical Center for Research, the Pacific Northwest Bibliographic Center and the Ohio College Library Center are primarily bibliographic centers and will be described under Section 6.2; four additional systems are described below.

NELINET (New England Library Information Network) -
Organized in 1966 under the auspices of the New England Board of Higher Education, with the objectives of resource sharing, cooperative acquisition and joint ownership of little used materials, automated shared cataloging and technical processing systems, and cost-effective services on a regional basis, NELINET serves a number of academic, public, and governmental libraries in the six-state New England area.

SLICE (Southwestern Library Interstate Cooperative Endeavor) - Begun in 1971, the primary focus of this organization of six Southwest states is continuing library education for personnel in all types of libraries. Some experiments toward development of regional bibliographic files and SDI (selective dissemination of information) programs have also been undertaken.

SOLINET (Southeastern Library Network) - Organized in early 1973, SOLINET is not yet operational. Its object is to establish an automated interlibrary network in the Southeastern U.S. which will provide shared cataloging and technical processing, and bibliographic information retrieval. The network will be modeled after OCLC.

Upper Midwest Regional Library Network - Still in the process of organization, this network will include states in the North Central area of the U.S. in a network of shared resources. While plans have not yet been developed, it may also be expected to provide services similar to those furnished by OCLC.

Another consortium still in the process of organization is the Research Libraries Group comprised of Columbia, Harvard, and Yale Universities and the New York Public Library. The group plans an integrated program which will enhance the collective resources and increase the accessibility of those resources to the user communities of the four libraries.

Special note should be made of the libraries previously listed as potential National Resource Libraries. The role of National Resources is that of backup; this might initially mean very large general collections but should eventually include the concept of the very specialized library or collections holding unique topical resources. The libraries listed fall generally in the first category.

The objectives to be satisfied in connection with the sharing of resources are, according to Fussler,

1. To improve the quality or to extend the absolute body of resources available;
2. In some manner to improve the scope, quality, or assurance of access for many users; and
3. To improve the present cost-effectiveness ratios as they relate to both aggregate and local resource availability.³¹

Fussler goes on to suggest five methods of resources sharing to be considered: the existing pattern of decentralized institutional sharing; more formalized, but still decentralized, institutional sharing; federally supported regional or national acquisition and loan centers; resource sharing by libraries in close geographic proximity; and formally shared and supported central pools of resources.

The underlying need in resource sharing is, of course, the provision of materials to library patrons, a need currently served primarily through local collections and secondarily through resource sharing or interlibrary loan. At this time there does not appear to be any existing cost-effective application of electronic transmission of materials or any technology that would seriously indicate a radical change in the present formats of materials in local collections. Therefore, it is important to consider local library collections as the base for any resource sharing endeavor.

³¹ Fussler, Herman H., Research Libraries and Technology, Chicago, Illinois: The University of Chicago Press, 1973.

Building upon local collections makes two further assumptions which appear to be justified for specific ranges of materials: that the nature of demand is such that materials held in local libraries can also serve in an ILL function, and that, again based on demand, it would not be cost effective to have materials solely dedicated to ILL. These assumptions are clearly not true at the outer limits of a materials usage range, that is for materials rarely used or very frequently used. Materials very frequently used can be maintained solely for the local library patron, while materials rarely used should be stored as economically as possible and provided only when needed. For this second class of materials, regional last copy depositories are suggested.

Returning to the middle range of materials, further distinctions might conceptually be made to establish levels of support for ILL requests, where, as the level of demand diminishes, materials are provided by larger and more exhaustive collections serving a larger number of libraries. Ideally, then the system would be built in such a way as to provide an optimum number of uses (summing local and ILL use) of each resource volume. Utilizing this concept suggests the identification of zonal, regional, and national resource libraries, each providing materials as appropriate in a hierarchically defined ILL system.

While the above discussion provides a framework for the identification of specific materials to be provided by each level of the Resource System, it is important to note that the volume and variety of materials available and materials required make specifics a difficult problem. Needs must be analyzed in depth and, in an operational resource system, continuously monitored. The problem will be somewhat further addressed in the descriptions of resource libraries at the national, regional, and zonal levels.

The ownership of all materials, by some library in the network is, of course, only the first step in fulfilling the primary function of the National Resource System, that is the rapid delivery of materials, in any format, requested by a citizen through his primary library. In all, five goals are suggested to support this program:

- Goal 1: Ownership of all significant materials in all formats by libraries and information centers in the resource network.
- Goal 2: Ease of access to the materials available in the resource network.
- Goal 3: Successful delivery of requested materials through the resource network.
- Goal 4: The coordination of new and existing libraries and information centers in an hierarchical resource network.
- Goal 5: The development of a satisfactory funding approach.

A full discussion of these goals, and short and long range objectives relating to them, is presented in Appendix D.

5.4 Using the Resource System: The Patron and the Local Library

A vast collection of materials will be made available to all library users through the National Resource System. The patron, entering his or her primary library, will have dependable access to both the collection of that library and the collections of all libraries in the resource hierarchy. One important goal

of the Resource System will be, by supporting the local library, to provide the basis for an expanded notion on the part of each library user of the services available from the primary library.

The role of the local library will be, then, both to provide the first source of materials to the user and also to obtain other needed materials for the user through the Resource System. An essential part of this role will be assisting the patrons in identifying their needs and the resources appropriate to them under an expanded definition of available materials.

Local libraries will also serve as resources in the National Resource System by providing materials to patrons of other libraries through the applicable request channels. While initially only the very large and very specialized libraries will be designated nodes of the system, it is expected that additional libraries -- or parts of library collections -- will be included as the system develops.

Requests from the local library for loan of materials will follow the hierarchical patterns developed within the state and region. When states elect participation in the system they will determine whether libraries within the state (all or designated libraries) may go directly to the state-node Resource Center or must first exhaust possibilities for meeting needs at lower levels. Libraries with CRT facilities will be able to search the regional catalog file for intrastate locations of needed materials, and it is anticipated that many requests will be filled through this location source.

In general, it is assumed that state systems will terminate at their designated state nodes in the resource zone. These Resource Centers will fill all requests possible without additional verification, and then pass unfilled requests on to other zonal Resource Centers or to the Regional Bibliographic Center, as experience and/or regional patterns dictate. Development of circulation systems in Resource Centers would permit direct searching of all resource facilities before transmitting an unfilled request to the Bibliographic Center for location outside the region.

Suggested channels of access to designated resources have been discussed in Section 4.5 and illustrated in Figures 4-8 and 4-9. A facility with a CRT terminal could also search the Regional Catalog File for non-guaranteed access locations and independently request a materials loan. (Guaranteed access is used in this report to refer to those materials that Resource Libraries have guaranteed to loan.) No channels for such requests would be provided and non-designated libraries may decide whether or not they will fill such requests. It is likely that exchanges of this type will continue between libraries in relatively close proximity or with well established cooperative patterns. Future patterns of development, comprehensive data base and collection development, and continued improvements in technology may ultimately make the need for channels obsolete and permit direct access to any location for needed materials. For the present, rational collection development patterns indicate the need for channels which will permit determination of collection needs at all levels.

5.5

The State Level

Development within the individual states will primarily be the responsibility of the state library agency, with linkage established to the National Library Network through a designated State Resource Center. States will be required to reach some minimal level of resource sharing capability before requests from within the state can be transferred through the Resource Center to other nodes of the Resource System.

The functions of a State Resource Center will be three-fold: to meet the resource needs of in-state libraries channeled through the state system, to transmit unfilled requests outside the state to other Resource System nodes, and to meet the resource requests of out-of-state libraries channeled through the Resource System. Performance of these functions will require substantial effort on the part of the State Resource Center and the supporting state library agency.

Within the states, resource sharing may be developed as best meets the needs of the libraries involved. Several models are suggested in Section 5.5.2 for possible intrastate organization.

5.5.1

The State Resource Center

As stated above, the State Resource Center will serve as the link between library organization within a state and the National Library Network. In this role, it will fill in-state requests transmitted to it when possible, and pass unfilled requests on to other Centers at the zonal level of the Resource System. Functioning also as a Resource Center within a designated zone, the State Resource Center will provide materials to other libraries within the zone.

This multiplicity of functions suggests that a State Resource Center might advantageously be, in some states, a combination of libraries and/or other organizations, perhaps a newly developed agency utilizing various components of existing facilities. An important factor to be considered in designating a State Resource Center will be the volume of service to be provided, which in turn depends upon the type of network organization established within the state.

State Resource Centers will be subject to performance related criteria established by both the National Library Network and by the state served. NLN criteria, which will pertain to the Center's role in providing materials out of state, should include specifications concerned with size and scope of library collection, location, facilities and staff, required performance and the availability of holdings information. These criteria, applicable to all Resource Centers, are further discussed in Section 5.6.1. Similar criteria for the State Resource Center should also be established by the state for performance within the state, and care should be taken that resources are sufficient to meet both in- and out-of-state needs.

Compensation to State Resource Centers will come from the National Library Network for loans outside the state and from the state for services performed in-state. NLN funding will be the same as that for a Resource Library, i.e., a collection development grant plus per transaction fees. (See Section 5.6.1) State funding might be modeled upon the NLN system or upon reimbursement systems currently utilized in states with formal ILL networks.

Channels of access to the State Resource Center again depend on the specific organizational patterns within the state; in the simplest case, all libraries might send requests directly to the resource libraries but more reasonably a hierarchical system of resource libraries with alternate channels of access will be developed. Models for statewide library development are discussed next.

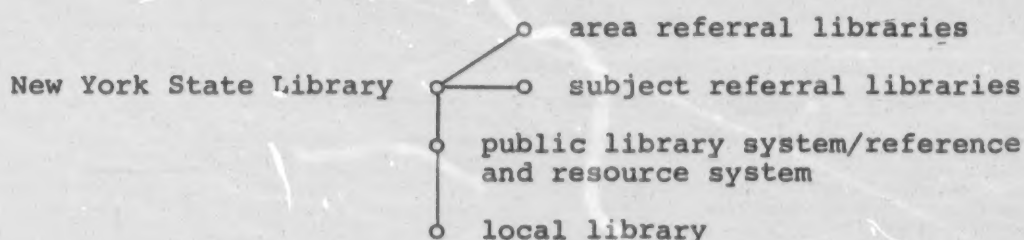
5.5.2 Models for Statewide Library Development

The survey of state library agencies conducted (see Appendix C) indicated widespread resource sharing activities within the states. Involvement varies greatly, with programs ranging over a single type of library to all libraries, single to multiple resource centers, and one to many hierarchical levels of development. State participation in the National Library Network will retain much of this diversity, but superimpose the requirement that all libraries within the state be provided some channel of access to the State Resource Center, which will fill requests when possible and transmit unfilled requests on to the next level of the Resource System.

Key variables in the modeling of statewide resource development include the number of hierarchical levels, the number and function (resource provision and/or referral) of service nodes, and the method of compensation to service nodes. While existing state systems frequently serve only specified types of libraries, this variable is not introduced in the models presented below because of the requirement of the NLN that all libraries be included. Modifications of existing models by the addition of channels for different types of libraries will, however, be discussed.

Models developed are based on selected state systems covering the general range of possible developments; both the models and the systems are representative rather than exhaustive. Individual state systems created or expanded should be based on an evaluation of state library needs in light of the resources provided by the Resource System.

New York



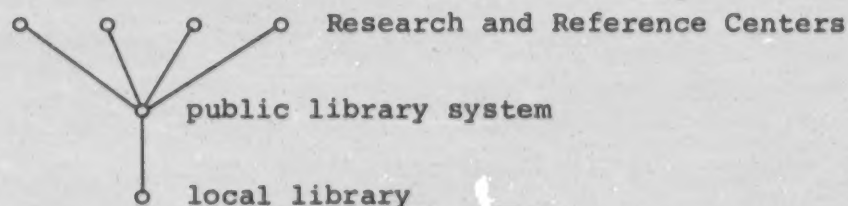
The New York State Interlibrary Loan System (NYSILL) is a system of compensated interlibrary loan designed to make the resources of a number of the great resource collections of New York available to researchers in the state. The New York State Library serves as the hub, monitor, and referral agency for the network.

The 22 public library systems and the nine library reference and research resources in New York are involved in NYSILL, with several of the public library systems transmitting requests for libraries in their area and 3R's systems also operating regional systems. Libraries requesting materials of NYSILL transmit their request by teletype or mail to the New York State Library,

where the collection is searched. If the material is not available and the request is coded for referral, it is referred either to an area (broad general collection) referral library or a subject referral library. Routing is indicated so that requests can be referred to several libraries in succession if necessary. Under certain conditions, academic libraries with collections of one million or more volumes may bypass the State Library, as may the New York Public Library Research Libraries.

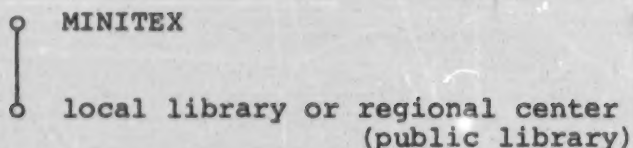
Compensation to the referral libraries in the NYSILL system in 1974 consists of participation grants plus \$1.00 or \$2.50 per search plus \$2.00 per filled request. The number of requests transmitted is monitored by the State Library.

Illinois



Four Research and Reference Centers in Illinois -- the University of Illinois, Southern Illinois University, Chicago Public, and the Illinois State Library -- provide interlibrary loan and reference services to public and academic libraries within the state. The Research and Reference Centers receive from the state a basic grant plus per transaction fees for searching and filling requests.

Minnesota



The Minnesota Interlibrary Telecommunications Exchange (MINITEX) is the first step in a functional statewide library network of resource sharing, offering a system whereby all the academic libraries in the state, together with major public libraries and special libraries, cooperate to share their resources. Citizens with a need for information can have their requests transmitted via teletype to the MINITEX office; here the collections of the University of Minnesota are searched, and, if necessary, other resources are consulted. Documents are delivered via Greyhound bus and local courier to eight locations throughout the state and by First Class mail or United Parcel Service to other locations. MINITEX is funded by the state of Minnesota under the Higher Education Coordinating Commission and, for public library use, through the Minnesota Office of Public Libraries and Interlibrary Cooperation.

An important facet of MINITEX services is its steps towards a collection development program including the use of the Minnesota Union List of Serials in joint evaluation by libraries of potential serials purchases and the establishment of a clearinghouse on unique and expensive sets.

Washington



The Washington State Library serves as a supplementary resource to public and academic libraries of the state, providing interlibrary loan services when a location for direct application is not known. Requests may be sent by mail or, in priority or rush situations, through the SCAN telephone network. Materials not available in the State Library are located and requested through the Pacific Northwest Bibliographic Center or by other appropriate means.

Seattle Public Library serves as a major resource center for Washington state, and in recognition of this, federal funds have been paid to the library in the past to enhance the book budget.

Washington is currently developing an automated Washington Library Network which will have substantial impact on traditional ILL patterns.

New Jersey

- designated Research Library Centers (4)
- designated Area Libraries
- local library

A statewide plan for New Jersey has defined three levels of materials service: the first level, local public, school, academic and special libraries; the second level, Area Libraries; and the third level, Research Library Centers. In addition, two Research Library Centers have been designated as regional libraries to allow efficient channeling of first and second level requests.

In general requests are sent to the Area Library, then to the appropriate Regional Library, and then to the other Regional Library or to a Research Center. Special libraries, state college libraries, and some other college libraries may send requests to a Research Library Center, and other special arrangements provide additional flexibility in routing.

Area Libraries and Research Library Centers are under contractual obligation with the State Library to provide services.

5.6 The Delivery Level (Interstate Resource Zones)

The zonal level of the National Library Network will consist of Zonal Resource Libraries (Resource Centers) providing ILL materials primarily within their zone. These Resource Centers are the chief operational component of the National Resource System, supported by backup Resource Libraries at other levels and by national and regional level staff providing leadership and coordination.

Multi-state zones -- consisting of about five states on the average in the suggested schemes -- were selected as the appropriate area for Resource Center development for several reasons. One goal was to identify areas in which rapid, efficient ILL resources could be provided for a large percentage of the requests originating in that area. Distance and the number of libraries involved limits the number of states which can be included, while resources available suggest that as states are combined, the resource pool becomes larger and capable of filling a greater percentage of requests. In addition, a resource zone is suggested as a workable area for various collection development activities

and for small scale experiments in other library support functions. States within the resource zones developed have, in general, a history of cooperation and some similarity of library-related characteristics.

As communication technology improves and the National Resource System develops -- as the suggested on-line bibliographic data bases reduce the impact of geographic distance and organized library cooperation becomes a reality -- it may be appropriate to expand the resource zones on an experimental basis and observe the impact on both borrowing and lending libraries. In time, it is expected that resource zones might merge into the larger resource regions.

5.6.1 Resource Centers

The function of the Resource Centers within a zone is to provide fast, efficient, guaranteed ILL service in response to requests made by libraries within the zone, filling a substantial proportion of these requests. In order to minimize the transfer of requests from Center to Center--under initial conditions of only general knowledge of the Centers' holdings and relatively slow request transmission and processing times--it is suggested that originally only one Resource Center be identified for each state. This is seen as the minimum set of Resource Centers, and it is expected that additional Centers will be added as the Resource System develops.

This initial Resource Center in each state will, in addition to providing ILL services throughout the zone, serve as the entry point to the Resource System for requests from libraries

within the state. Thus it is expected that at least some minimal level of state development will be achieved prior to designation of the Resource Center. Models for such state developments were discussed in the preceding section.

Criteria for Selection of Resource Centers

The criteria by which Resource Centers should be selected include specifications concerned with size and scope of the library collection, location, facilities and staff, required performance criteria, and the availability of holding information to other libraries.

Probably the most important single criteria in choosing initial Resource Centers in the various states, is the willingness of the identified facility to cooperate in providing the needed services. This must include willingness to designate resources to which guaranteed access, on a basis equal to that provided local users, will be provided, and organization of fast, efficient handling of requests received.

In addition, state library authorities must express willingness to have the identified resource serve as final state resource and entry point for libraries within the state into the network. State support to the facility for its role as ultimate state resource should be feasible (i.e., could the state provide support to a privately owned facility, etc.), and such state support strongly encouraged.

Libraries selected must be those providing substantial resources of a nature relevant to the needs of libraries within the zone. Within a zone, facilities selected for designation and support as Zonal Resource Centers should include multi-type libraries so as to have the broadest possible resource base. While this composition may vary according to needs and resources within the zone, at least one major public library (or state library providing backup services to a public library system), for example, should be included within the zonal system.

In order to insure rapid delivery of materials to requestors, location of the facility in terms of transportation systems (or specialized library transportation systems such as couriers, etc.) must also be considered.

Libraries selected must have, or be willing to provide, adequate facilities and personnel to make efficient operation of the lending operation possible. They must also be willing and able to meet designated performance criteria in terms of speed, collection development to permit desired fill rates, etc.

Finally, when possible, the availability of holdings records or existing circulation systems to provide the necessary location information would provide a valuable asset to the operation of the system.

Early Development Within the Resource Zone

Initially, requests reaching the Resource Centers from within the state will be searched for holding or availability, and filled or passed on to another zonal resource or the Regional Bibliographic Center for further action. All requests leaving the

state as unfilled will be monitored within the system; and where additions to resources of the state node should be made to insure minimum compliance with realistically appraised fill rates for the state, such recommendations will be made to the pertinent Resource Center and state library authority.

System monitors will also review requests not filled within the zone to determine increased levels of resources required. Improved zone fill rates may be achieved by either adding additional Resource Centers, support for collection development at previously designated Centers, or both. Constant review of fill rates and analysis of requests unfilled will be carried on at the Regional Library Support Center to insure that such fill rates are realistic in terms of volume of use of materials identified as not available within zones and region and reasons for non-availability. Where additional copies of heavily used materials are necessary within a zone to provide reasonable access time for users, the Support Center office shall designate the optimal location(s) for such materials, provide compensation for such additions, and may, if it appears necessary, designate such collection additions as "dedicated" resources which shall be available to local users only under the same conditions as they are available to other users within the zone.

Compensation to Resource Centers

Three forms of compensation to Resource Centers are anticipated, and levels of such support should be reviewed annually to insure that it is realistic and consistent with the service provided by the centers. These three kinds of compensation include:

1. An annual basic grant, to be used by the Resource Center in the manner deemed necessary for enhancing the ability of the Center to meet

its responsibilities to the network. Such expenditures may be for staffing, improvement of facilities, collection additions, etc., at the option of the Center.

2. Transaction fees, designed to reimburse the facility for the actual costs of providing the service. Figures from a highly efficient state resource lending facility indicate that the schedule of fees noted in Chapter 7 should provide a realistic cost return for an efficient operation with proper utilization of personnel at current cost levels, but variations across the country and constant cost changes make essential a review and annual update of fee schedules to keep fees realistic. While a single standard fee at each resource level is proposed for the first year of operations, some variations to reflect the differences in costs across the country should be scheduled for the second year of operation.

Where substantial cost variations are reported within areas, a review of individual center procedures and staffing should be undertaken and recommendations made for maximum cost effectiveness in operation. Minimal professional involvement in Center lending procedures is anticipated, since all verifications for materials requested and not located on first search at any level will be performed at the Regional Bibliographic Center before being referred outside the region for filling.

3. Collection development support. No funds for collection development support are noted in costs for the network in Chapter 7, since levels of expenditure and allocations of funds will be based on monitoring of the system needs at all levels. Collection development support in Zonal Resource Centers, to meet a reasonable level of intra-state support, should be the obligation of the state in which the Center is located and should be based on a criterion of reasonable level of demand within the state. Above this level, identification of materials not held but needed within the zone,

on a zonal level of use criterion, shall be provided by system monitors and their collection at pertinent resource centers supported by the Regional Resource node. Such collection supplements should include additional copies of heavily used materials.

5.6.2 Cooperative Collection Development Within the Resource Zone

One aim of an improved system of interlibrary loan is to provide sufficient assurance of access to needed materials to enable libraries to broaden their concept of holdings and thus to reevaluate acquisition policies in terms of Resource System rather than individual library needs. Thus, infrequently used materials now acquired by two libraries in a resource zone might be acquired by only one, with the resulting savings used for additional materials not now held at all. In a similar manner, an evaluation of the number of copies of a title required by a resource zone might result in fewer, or more, copies being held. Resulting benefits could be both savings in unnecessary acquisition and processing and storage costs, and also increased responsiveness to library patrons.

In order to maximize benefits attained from the application of the concept of the zone-wide collection, some coordination of collection development policies of the Resource Centers is required. This task will be the responsibility of the Regional Library Support Center staff, working in conjunction with the Resource Centers. The results of monitoring of unfilled requests at the Support Center, patterns of access within the zone, existing collection strengths, and the needs of the direct patrons of the Resource Center libraries should all be taken into consideration in developing the overall framework and specific implementation aspects of a zonal collection development plan.

Financial support for collection development activities in the Resource Centers will come from grants made by the NLN and administered by the Regional Library Support Center. These grants will be used to expand collection coverage and services to patrons of the National Resources System.

5.6.3 Delivery Systems at the Zonal Level

While it must be assumed that substantial proportions of materials loaned through the network will utilize existing transportation facilities such as mail, United Parcel Service, bus, etc. for delivery, attempts will be made to provide other alternatives when appropriate. Encouragement and support of intra-zonal and sub-zonal efforts in this direction will be supplied through the Regional Library Support Center, which shall also be active in initiating such systems where feasible. Such efforts could include batching of materials to designated delivery areas, where courier systems might distribute them to individual libraries, with returned materials handled similarly in a reverse flow.

Figure 5-1 illustrates possible methods for such transmission and distribution of batched requests. In all cases speed of delivery at cost-effective unit prices must be the prime factor in services developed.

5.7 The Regional Component of the National Resource System

The Regional Library Support Center will support the provision of materials through interlibrary loan with various bibliographic activities serving to identify the location of materials available for loan within the region, and, when materials are not available within the region, by transmitting the

Figure 5-1. Possible Methods of Delivery of Materials to Libraries in the Zonal Level

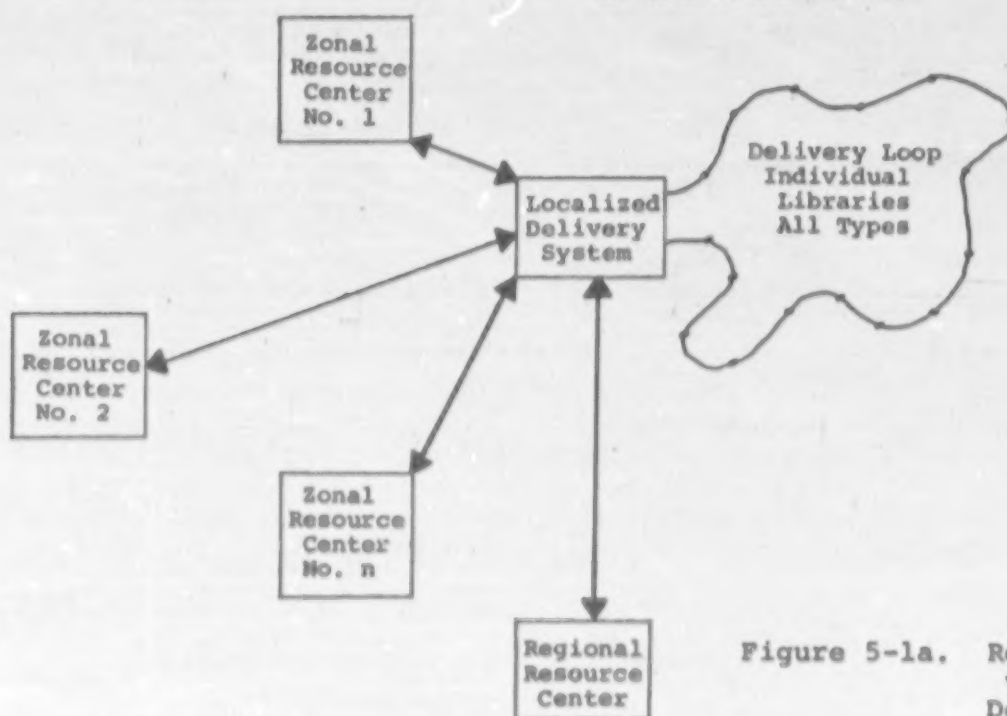


Figure 5-1a. Resource Center to Localized Delivery System

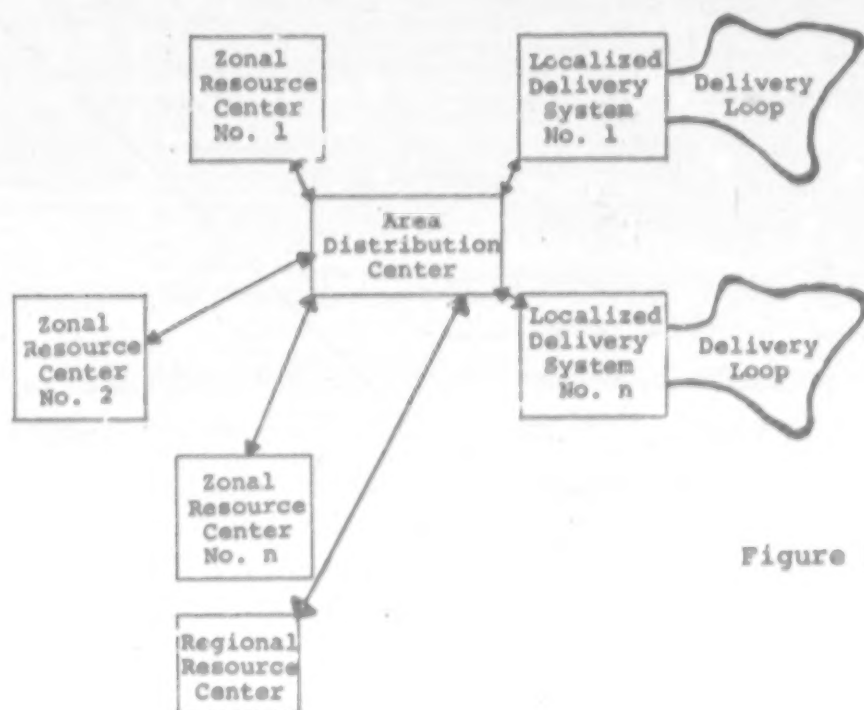
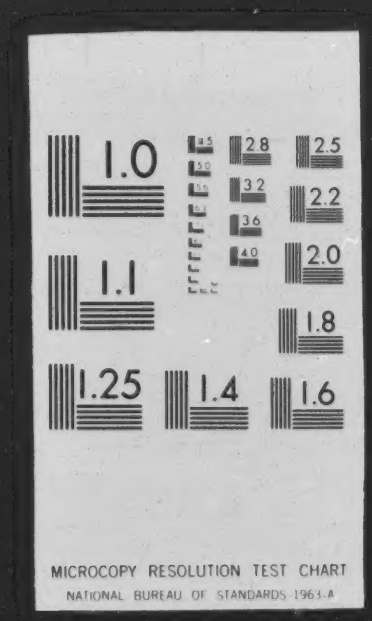
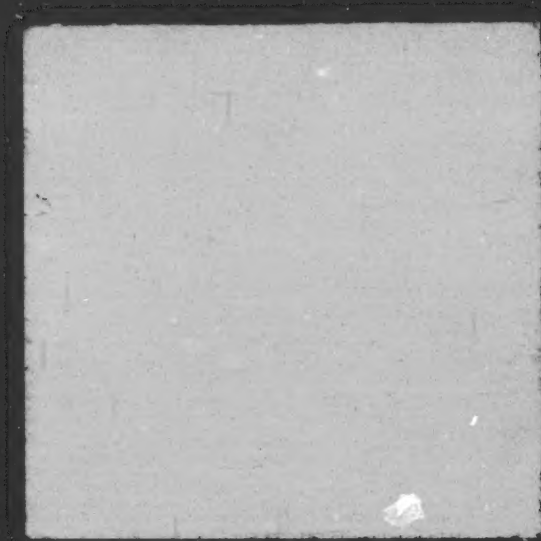


Figure 5-1b. Resource Center to Localized Delivery Systems Via an Area Distribution Center



ILL request beyond the region. Within the region, materials will be provided by two levels of resource libraries -- regional and subregional or zonal, both types identified and coordinated by the Regional Library Support Center.

To provide infrequently used materials, the Regional Library Support Center will administer a Regional Last Copy Depository, a warehousing operation in which materials from any library in the region no longer in demand can be stored.

Additional functions of the Regional Library Support Center with respect to resources include the development of methods of communicating ILL requests within the region, the monitoring of ILL requests to identify collection gaps and service problems, the designation of additional resource libraries as needed, and the support of coordinated collection development activities.

5.7.1 Regional Resource Libraries

The Regional Resource Libraries will serve as backup to Zonal Resource Libraries (Resource Centers), providing materials in response to requests which have been transmitted through the zonal system and remain unfilled. In this way, Regional Resource Libraries will function in much the same capacity, over a smaller geographic area, as the National Resource Libraries.

Criteria, then, for Regional Resource Libraries are similar to those for National Resource Libraries:

1. Collection appropriate to requests which will be made, initially indicated by current extensive service to libraries within the region.

2. Ability to meet prescribed service standards for fill rate and delivery time.

Compensation to the Regional Resource Libraries should take the form of categorical collection development grants plus per transaction (filled request) fees. As the system is monitored, additional special collection development may become appropriate.

It is suggested that initially only one regional resource library be designated per region, and that the number added as the system develops be kept to a minimum, since zonal resources within the region will also be available to serve as backup for regional requests. If the Regional Library Support Center is associated with an existing library, that library might reasonably be given first consideration as the Regional Resource Library.

5.7.2 The Regional Last Copy Depository

Conversations with librarians across the country indicate the desirability of a Last Copy Depository to house those materials which libraries find are rarely used but which should be retained somewhere. A Regional Last Copy Depository, administered by the Regional Library Support Center, is suggested.

The Regional Last Copy Depository will store, at minimum cost, at least one copy of each title sent to it, making the materials available when necessary. This diminishes the burden of discarding a book from a local library collection, and should

serve to increase the number of such discards made with a resulting decrease in local collection maintenance costs. Further, the availability of such materials to potential users will be increased by the close relationship of the Depository and the Regional Bibliographic Center.

Specific criteria should be established for materials to be sent to the Last Copy Depository; these will facilitate libraries' decisions as to what to send and, in turn, what to request from the Depository. One likely criterion is years since publication, possibly with different limits for different classes of books. Materials not fitting the specified criteria should be considered for inclusion in the Depository but not necessarily accepted.

Like any library collection, the Regional Last Copy Depository should be periodically weeded. Materials not retained might be sent on to a national depository.

5.8 Resource System Components at the National Level

Based on the suggested framework for the Resource System, the national level will consist of National Resource Libraries, filling requests referred by the National Bibliographic Center, and NLN staff serving to support and coordinate components of the Resource System at all levels. The development of a National Periodical Resources System for the provision of periodical resources as part of the national system is discussed in Section 5.8.2.

5.8.1 The National Resource Libraries

At the national level it is suggested that certain libraries be designated as National Resource Libraries to serve as backup to resource libraries at the regional and zonal level, providing materials primarily when requests have gone unfilled at the lower levels, and in response to occasional direct requests when justified. As the resource system develops, specialized subject collections of certain libraries may also be designated as national topical resource centers, but initially the national resources should represent broad collection strength.

The first criteria for the initial national resource libraries is that they are demonstratively serving in that capacity at the present time; i.e., that requests for interlibrary loans are received in large proportion from libraries outside the resource's geographic region. A second important specification for a National Resource Library suggests that the library must be willing to meet service standards, including percentage of incoming requests filled and delivery time. In the initial stages of resource network development, existing bibliographic tools will be the only method available for identification of locations, and thus the existence of any reproducible record of holdings (book or microform, catalog, on-line circulation system) would prove advantageous.

Requests coming to the National Resource Libraries will come for the most part from the National Bibliographic Center. Those requests which go unfilled will be returned to the Center for further processing. For the services provided, it is suggested that compensation from the National Library Network take the form of collection development grants plus per transaction

(filled request) fees. In addition, as materials gaps are identified by monitoring of national level requests, additional collection development funds should be provided specifically for these materials.

5.8.2 The Periodical Resources System

An earlier study for the Association of Research Libraries generated a recommendation and design for a National Periodical Resources Center.³² This system would collect periodicals comprehensively in all subject areas except the specific biomedical areas in which the National Library of Medicine has comprehensive coverage, and provide photocopies, directly to users where requested, upon request from any library. Materials not available through the system resources would be referred to other national and international facilities as identified, without further action on the part of the requestor.

Some question may be raised as to whether or not a new dedicated Center of this type is really necessary if a national network system, as described in this study, becomes a reality. Several factors support the development of a single new National Periodical Resources Center within a national network.

1. Utilizing the Resource Centers for accessing periodical materials requires substantial periodical collections at each of the resource

³² Palmour, et al., Access to Periodical Resources, Op. cit.

libraries. Providing ready access to this material would require a dedicated duplicate copy of heavily used titles.

2. Since the largest part (85 percent) of periodicals requests are met by photocopies of articles within the periodicals, each of the resource libraries would require top quality dedicated duplicating equipment.
3. Provision of these services direct to users with only the request going through a library would relieve part of the load on local libraries as well as on the bibliographic referral system. Resource libraries would continue to supply original materials required, but relieving them of the burden of supplying the large volume of photocopies required would improve their abilities to meet other resource system demands.
4. From a systems view, operations should be more cost effective because of the elimination of unneeded materials and duplication of equipment.
5. Provision of all copying service at a single national center would permit negotiation of an agreement with publishers for copying of copyrighted periodical materials, for which some form of small royalty or other reimbursement might be arranged as required. Addressing the copyright problem at a single national facility should permit local user copying in libraries clearly within the fair use doctrine.

On the basis of the above, this study recommends that a National Periodical Resources Center be developed and utilized as a component of the National Library Network, to provide periodical materials from a given date onward to all libraries. Retrospective periodical materials and all other types of materials should then be provided through the hierarchical Resource System described throughout this report.

6. THE NATIONAL BIBLIOGRAPHIC SYSTEM

The need for better bibliographic services to enable libraries to meet information needs of users has been discussed in earlier chapters. What are the current tools and services, and why are they inadequate? A number of bibliographic tools for location and control of library materials may be found in local libraries, in sub-state areas or statewide facilities, in regional centers, in national resource libraries, and in commercial services. The following three sections summarize these existing services, which the National Bibliographic System proposes to coordinate, improve, and build upon.

6.1 State Bibliographic Services

Union Catalogs and Union Lists of Serials. Half of the 46 states responding to the survey of state libraries/library agencies (see Appendix C) reported a statewide union catalog, generally containing holdings records of large academic, public, and special libraries in the state. An additional six states reported some sub-state area union catalogs. About half of the statewide union catalogs are card files, five are microform records, and three are computer products.

Twenty-two states reported statewide union lists of serials, an additional six states noted that serials were included in union catalogs, and ten reported sub-state area or local union lists of serials. Fifteen of the statewide lists are printed, while four are computer produced and three are microform records.

Two of the largest state card-file union catalogs (Pennsylvania and Ohio) have now been frozen, with searches for added records made in the automated on-line catalog file of the Ohio College Library Center (OCLC). This OCLC catalog file represents the only current automated multi-state materials holdings record.

Cataloging and Technical Processing. Only eight states reported centralized cataloging and/or processing centers, although several additional states reported joint activities in sub-state areas.

6.2 Regional Bibliographic Centers

There are two large regional bibliographic centers in the United States which provide multi-state locations services from card catalogs; the Bibliographical Center for Research, Rocky Mountain Region, Inc., and the Pacific Northwest Bibliographic Center.

The Bibliographical Center for Research (Denver Bib. Center)

The Center was founded in 1935. Its primary function is the location of materials for interlibrary loan referrals. Services are provided, under contract, to libraries in eleven states (Iowa, Nebraska, Kansas, North Dakota, South Dakota, Wyoming, Utah, Colorado, New Mexico, Arizona, and Oklahoma). The Center houses a catalog of approximately 4,000,000 cards with up to 800,000 new cards received annually from about 100 libraries which make their holdings records available. Problems of backlogs in file maintenance and updating have caused Center Directors to look to methods other than the card file for providing Center services, and several automated systems are being studied. A contract with OCLC is under consideration at this time.

Pacific Northwest Bibliographic Center (PNBC). Organized in 1940, this Center is also primarily a regional interlibrary loan referral center, although it also provides some direct services to using libraries, particularly in the supply of photocopies of periodical articles. All types of libraries are served under state financing agreements. Libraries served are found in Montana, Idaho, Oregon, Washington, and Alaska. In addition, portions of British Columbia are included under a contract with the Center, and libraries in adjacent Canadian provinces have also expressed interest. Operation of the PNBC, like that at Denver, is a labor intensive manual process, utilizing a file of about 4,000,000 cards, with some additional holdings recorded in book catalogs and on microforms. About 350,000 new cards are received from contributing libraries annually. Recent intensive effort has eliminated backlogs in updating of the card files, and no plans for changing operational patterns are now being considered, although the developing catalog automation program at Washington State Library may well have a strong impact on future developments.

Because of constant and increasing problems of maintenance for these manual files, the two centers, in their present form, must be considered a diminishing force in bibliographic networking.

The Ohio College Library Center (OCLC). OCLC was organized in 1967 to provide computerized cataloging services for member academic libraries in Ohio. The first phase of development of this system has been on-line shared cataloging, off-line catalog card production, and the creation of an on-line system-wide location file by appending individual library holdings to the records in the catalog file. These holdings records are utilized for interlibrary loan. Membership in OCLC has now been expanded to include public

libraries. On-line service out-of-state is also provided under contract, and is now utilized by library groups in Pennsylvania, New York, Georgia, Texas, New Mexico, the NELINET (New England Library Network) system and the federal library community. Service will also be extended soon to 99 libraries in the Southeastern Library Network (SOLINET), which, however, projects eventual separation for an independent system.

In addition to providing a model for developing regional groups such as SOLINET and the Upper Midwest Regional Library Network,³³ OCLC offers an experience factor valuable for the design of automated regional centers in a national library network.

Besides OCLC, only one other multi-state catalog card processing center was reported--the New Hampshire Centralized Card Service, which serves public, special, and state libraries in New Hampshire, Maine, and Vermont.

Other Automated Programs with Regional Implications

1. WLN (The Washington Library Network) This network, organized by the Washington State Library, uses a computer system similar in concept to the OCLC system, and is scheduled to go on-line within the year, when it will provide the cataloging and referral services now provided off-line, to remote CRT's (cathode ray terminals) of member libraries in the state of Washington. Available for expansion to other states, WLN provides another potential nucleus for development of regional automated services.

³³ See Figure C-2, Appendix C, for states included, function, etc. for these regional networks.

2. BALLOTS (Bibliographic Automation of Large Library Operations Using a Time-sharing System). BALLOTS is the on-line library automation system for Stanford University libraries. Although developed for a single institution it is now planning to expand services to libraries in adjoining areas. While similar in functions to the OCLC and other automated systems, development in this system has progressed beyond the shared cataloging - catalog file module to additional modules which provide eight separate technical processing functions, including ordering, claiming and cancelling of orders, and generation of necessary accompanying forms and files.

6.3 National Bibliographic Services

National bibliographic services include both location tools and cataloging services. These services represent relatively recent attempts to develop coordinated location activities and to provide authoritative and consistent centralized cataloging records for use of local libraries.

6.3.1 Location Tools

The National Union Catalog (NUC). The NUC is a card catalog maintained at the Library of Congress which contains holdings records with location information for materials cataloged by LC and about 800 other reporting libraries. Materials are filed under main entry (usually the author) only. Information in the catalog is published monthly (9 issues), and accumulated quarterly, annually, and quinquennially. Monthly issues contain records of cards prepared for currently published works and those published within a two year prior period. Quarterly and annual accumulations also include materials for earlier imprint dates cataloged during the period. Publication of annual cumulations is usually delayed, appearing 9-10 months after the end of the year included, which

inhibits use of the printed catalog for location of some current materials. Requests can also be forwarded to the NUC Division at LC for current holdings records which are searched against the card catalog. It usually requires from 3-6 weeks to receive the holdings information.

In addition to using the holdings records of the NUC for locating materials for interlibrary loan, NUC entries are also used for cataloging purposes. Here again, the delays in publication inhibit full usefulness.

The National Union Catalog, Pre-1956 Imprints. Most frequently referred to as the Mansell catalog, for its publisher, this publication aims at providing holdings records for all pre-1956 imprints held in one or more of the libraries contributing such information. About two-thirds of the volumes in the catalog have been published. Compiling and editing the catalog has been costly, and the additional costs of updating (in this case particularly to show deletions from collections) must be expected to inhibit early or frequent corrections to holdings information.

Union List of Serials and New Serials Titles. The third and final edition of the Union List of Serials was published in 1966 in five volumes, and listed 156,499 titles in 956 U.S. and Canadian libraries. Titles which began publication after January 1, 1950, since they are included in New Serial Titles (which in that sense becomes a cumulative supplement to the Union List), are excluded from the Third Edition, as are approximately 340,000 pre-1950 titles included in the NUC, which are being published in the Mansell catalog. The number of locations for titles in the Third Edition was also restricted to ten, which limits usefulness of the tool for interlibrary loan. New Serial Titles is not concerned with pre-1950 titles except for bibliographic changes (such as title changes, suspensions, cessations, etc.), which are listed at the end of monthly issues.

6.3.2 National Sources of Bibliographic Data

The role of the Library of Congress in providing cataloging data to libraries has been discussed in Chapter 4. With the expansion of the Machine Readable Catalog (MARC) and Cataloging in Publication (CIP) programs, the sale of LC catalog cards has declined. Amplification of the use of the MARC data base is discussed in later sections of this Chapter and in Appendix F. The CIP program is of special importance in providing immediate access to the less comprehensive bibliographic data requirements of the smaller libraries, which are least likely to utilize the machine readable catalog data base.

Other sources of cataloging data are provided by commercial services which sell catalog cards or information to a large number of libraries, especially school and public libraries.

6.3.3 Secondary Bibliographic Tools. Abstracts, indexes, bibliographies, etc. are the secondary bibliographic tools which provide access to articles in periodicals and newspapers, research and governmental reports and other non-book print materials. Published and machine-readable data are provided by governmental agencies and by profit and non-profit commercial organizations. Most comprehensive coverage is available for scientific materials, but even in this area there are both substantial redundancies and coverage gaps. In addition, such services tend to lack the standardization in format and compatibility in search necessary for effective use.

Inadequacies of Current Bibliographic Services

Earlier chapters have discussed the need for consistency in bibliographic records and improved tools for locating materials in resource sharing programs. Reviewing existing bibliographic tools and services highlights the following inadequacies in present services:

1. The limitations of location tools, both in geographic coverage and in representation of libraries. Many states have only the individual catalogs of large academic and public libraries in the state to utilize in the location of materials for interlibrary loan. Even where such location information has been accumulated at a single access point, the union catalog developed tends also to represent holdings only of large libraries, thus further exacerbating the problems of heavy outside demand on their resources. This is also true of the National Union Catalog. Studies have indicated a surprisingly low level of duplication in collections even among libraries of the same type and size. Experience in use of the OCLC catalog location file has indicated that access to holdings information for all libraries in a system could permit smaller libraries also to make their contributions to resource sharing.
2. The problems of file maintenance and updating in manual location systems. This has limited their currency and hampered their effectiveness.
3. The delay in availability of centralized cataloging data. While most libraries have demonstrated the desire for centralized cataloging by their use of LC catalog data from a variety of sources, the delays in availability of the data through present publication methods have not obviated duplication in original cataloging effort. Although development of

the MARC format and distribution of MARC tapes of current catalog records has accelerated availability, both the limitations of coverage and the cost of using the machine readable records has constrained its use. For small libraries the CIP program has provided immediate access to needed catalog data, but here again, the coverage of materials is inadequate and a substantial volume of original cataloging is still required. Commercial services are similarly limited.

4. The redundancies and inadequancies of secondary bibliographic tools.

6.5 Goals and Objectives of the Bibliographic System

The basic bibliographic tool of most libraries is the card catalog, which provides both bibliographic description of most individual items and their physical location within the library. While the management and maintenance of these files in large libraries is becoming increasingly difficult with the rapid growth of collections and technological and environmental factors which affect their organization, a larger problem may be seen in the wide variation in bibliographic descriptions among libraries which makes it difficult to identify many of the descriptive records as being for the same item. In addition, adequate bibliographic access to many library materials, including government documents, periodical articles, research reports, and local materials, is often lacking.

Although use of catalog card and MARC tape services has somewhat improved consistency in cataloging where accepted without variation, and has also somewhat reduced the duplication of cataloging effort for a single title by a large number of libraries, there are still serious inconsistencies in records and massive redundancies in effort.

Management of card catalogs is essentially management of files, an area conducive to computer manipulation, and consequently a focus of attention in many library automation projects. Development of the machine readable catalog record has made such manipulation feasible, and improvements in remote access to computer-stored data bases makes a single comprehensive file of bibliographic records for library materials a realizable goal. Such a file also provides a useful nucleus for development of a comprehensive location register.

6.5.1 Goals and Objectives at the National Level

Goal 1: To provide on-line access to authoritative bibliographic descriptions for all types of information materials in all languages (The Bibliographic Record Files).

Objective 1: To develop a set of on-line bibliographic data files that are comprehensive and consistent.

Objective 2: To establish greater consistency in cataloging, for better identification of materials needed.

Objective 3: To reduce overall costs to the library community by eliminating the need for extensive duplication in cataloging effort.

Goal 2: To provide comprehensive, up-to-date location information for physical access to recorded information materials (The National Location Register).

Objective 1: To develop an on-line register of locations for all materials included in the machine-readable data bases.

Objective 2: To coordinate the retrospective conversion of the National Union Catalog (post-1955) when feasible.

Objective 3: To provide location information through use of manual tools for materials not included in the machine-readable data bases.

Objective 4: To locate and coordinate access to materials held in other countries.

Goal 3: To coordinate with relevant components of the information community, including federal facilities and the private sector, the development of a machine-readable national data base of secondary bibliographic files (The Reference Files).

Objective 1: To sponsor development of standard formats for machine-readable secondary bibliographic records (abstracts, indexes, etc.)

Objective 2: To coordinate input into the on-line data base of records from commercial, government, and non-profit indexing and abstracting services, and to sponsor added input for pertinent materials not covered by the current services.

Objective 3: To coordinate development of the necessary file indexes and search strategies for utilizing these national reference files.

Objective 4: To channel and coordinate requests for off-line retrospective searches and other off-line services using the data base.

Objective 5: To supplement available services in the provision of subject bibliographies, selective dissemination of information, etc.

Goal 4: To provide other bibliographic and technical support for the library community.

Objective 1: To develop auxiliary technical support services for the control of library materials.

Objective 2: To support measures for improved retrieval of materials.

Objective 3: To develop additional data files as necessary to meet demonstrated nationwide information needs (The Information Files).

Objective 4: To establish better patterns of communication between libraries and their suppliers to ensure greater compatibility in goals and services, as well as improved efficiency and cost effectiveness in the acquisition of materials (The Interactive Order System).

Objective 5: To exercise leadership in the development of technologies, materials, and services to fill unmet needs of users identified at all levels of the National Library Network.

6.5.2 Goals and Objectives at the Regional Level

Goal 1: To establish regional facilities and programs for on-line acquisitions, cataloging and technical processing support.

- Objective 1: To provide access to the national bibliographic data files, and to convert national MARC records into LC card format (as required) for purposes of on-line cataloging.
- Objective 2: To provide channels of access to cataloging data for retrospective titles newly acquired and not in the national on-line files.
- Objective 3: To provide a format for entry into the regional catalog file of original cataloging when no national record is available.
- Objective 4: To supply such catalog records as are required by local libraries, including catalog card packs, microform or magnetic tape records, book or microform catalogs, etc.
- Objective 5: To provide access to on-line national publisher-vendor inventories and automated ordering systems, if developed.
- Objective 6: To develop regional in-process files for ordering, claiming or cancelling library materials.
- Objective 7: To provide supplementary technical support services as required.
- Objective 8: To reduce expensive duplication of effort in cataloging and technical processing of library materials.

Goal 2: To develop a rational basis for cost-effective decisions on acquisitions.

- Objective 1: To provide on-line records of materials available in the guaranteed access resource system.
- Objective 2: To provide records of holdings, in regional catalog files, and of materials ordered, in the in-process files, which will permit libraries to make rational, cost-effective decisions on acquisitions of little used materials.
- Objective 3: To monitor volume of use of materials for feedback to libraries and library systems. Such feedback should permit determination of proper levels for acquisition of specific items or categories of materials.

Goal 3: To provide facilities and channels for effective resource sharing within the region.

Objective 1: To develop on-line holdings records for materials available in libraries within the region.

Objective 2: To gather at regional bibliographic centers all available holdings records for materials not included in the on-line catalog files.

Objective 3: To provide channels of access for location of materials, and for forwarding requests to pertinent facilities within the region.

Goal 4: To provide services and channels for efficient resource sharing beyond the region.

Objective 1: To provide locations and referrals for requests not fillable within the region.

Objective 2: To distribute referrals equitably.

Objective 3: To maintain channels of communication with other regional centers and with national segments of the resource system.

Goal 5: To monitor library processes and services in order to maintain and develop regional services relevant to changing library needs and developments.

6.6 Using the System

As noted in Chapter 4, services to users in early phases of development of the library network, will be channeled through the local library. Many of the services of the bibliographic system are, indeed, of only indirect value to users, through the enablement of local libraries to extend the delivery of resources beyond their present capabilities. At later stages, however, development of reference and information files may well permit direct services to users, by providing individual access to these files through terminals located in the library or other pertinent non-library facility.

Direct services to libraries will be provided through bibliographic components of the Regional Library Support Centers. In early phases, these should include:

1. Catalog control for the local library. (This control can be provided through centralized cataloging and production of catalog cards for local units, by matching and off-loading pertinent bibliographic records into a local automated catalog, by production of computer generated book or film catalogs, by direct access to holdings notations in regional catalog file, etc.)
2. Holdings information for all items held within the designated region.
3. Referral of requests for needed materials not held within the designated region to other regions or national resource centers.
4. Automation of acquisitions processes to speed service and reduce clerical activities and file maintenance.
5. Feedback on uses of non-local materials for more knowledgeable collection development decisions.
6. Access to data bases useful for development of some local automation programs.

As the reference files are developed, the regional center will also provide improved access to periodical articles, research reports, and other non-book print materials. In addition, such other services as selective dissemination of information (SDI), preparation of bibliographies, etc. may be developed as need is demonstrated.

Local library access to regional services has been discussed in Chapter 4 and outlined in Figures 4-4 and 4-8. In general, direct access to most bibliographic services is available to all libraries with on-line terminals. It is suggested that access for libraries without terminals should be available through the next higher unit within a system or network which does have a terminal or through a state service center designed to channel services to intrastate libraries.

6.7 The Bibliographic System: National Level

While emphasis at the national level of the bibliographic system is on coordination, development and maintenance of national data files, personnel at this level will also be responsible for development and monitoring of services, coordination of associated activities of segments of the information community, development of appropriate educational and training programs to maximize efficient utilization of bibliographic services, and operation of the National Bibliographic Center. Organization at the national level was outlined in Figures 4-1 and 4-2.

6.7.1 The National Bibliographic Center

Requests for resources not available in the regions will be forwarded to the National Bibliographic Center, which will attempt to locate needed items in National Resource Libraries, or, if not available in the United States, at foreign resource facilities. In addition to providing location and referral services, the Center will monitor incoming requests to determine if specific items or categories of materials should be added to collections and at what level (See Figure 4-9).

6.7.2 Construction and Use of National Data Bases

Three primary types of data bases are identified as necessary at the national level of the National Bibliographic System.

1. Comprehensive and authoritative bibliographic records for access to and control of all types of library materials in all languages.

2. Location tools which can provide rapid physical access to library materials.
3. Supportive files, which can aid local libraries in collection development, technical processes, and in reference services.

The National Bibliographic Data Base

The need for comprehensive and standardized bibliographic access has been discussed in earlier chapters. In addition, studies have indicated the substantial cost savings, to the entire library community, of a central cataloging effort providing a single bibliographic record for each unique item -- indeed, the heavy use of LC source data for cataloging is, in itself, proof of such economic value to individual libraries. Substantially increased savings, as well as improved consistency in catalog records, could be achieved by increasing the currency and expanding the breadth of present centralized cataloging efforts.

Development of the MARC format for communication of bibliographic data, with its possibilities for machine search and manipulation, has provided a viable framework for development of the standardized bibliographic record system. There are at present about 450,000 LC bibliographic records (primarily English-language monographs) in full MARC format on magnetic tape, and the total is growing at a current annual rate of about 110,000 records (with more comprehensive language and types of materials coverage). With adequate funding, this rate could be quickly increased to 160,000 records per year, growing to a volume of 250,000 records annually within five years. These 250,000 records represent the total current level of LC acquisitions, which is estimated at about 75 percent of all titles acquired by large research libraries. Current publications levels are estimated at 300,000 to 350,000 unique bibliographic items per year, with an increase of about five percent annually.

Expansion of the MARC data base toward comprehensive coverage could be achieved by inclusion of high quality cataloging in the MARC format from sources other than the Library of Congress. Suggested methodologies for implementing this expansion are discussed in Appendix F.

Achieving consistency in the creation of bibliographic records from more than a single source requires:

1. Inclusion within the cataloging base of comprehensive authority files for determining consistent entries.
2. Acceptance by all members of the library community of the single bibliographic record. This involves acceptance of standardization of cataloging rules (full acceptance or standardization of variations from the Anglo-American Cataloging Rules) and procedures, including interpretations of rules as well as of the input format, by all libraries contributing to the MARC file.

Essential acceptance of the MARC input format is widespread and many of the potential contributors to the system are already moving toward a MARC-like record. Support for the increased input cost of full-MARC would encourage full compliance.

Agreement on standards in cataloging and subject analysis and development of a common interpretation of cataloging rules would require consultation and compromise. This compromise should insure that at least minimum requirements of all user groups are met. The greater search flexibility possible with the interactive on-line bibliographic system might well eliminate the need for many of the subject heading variations currently considered essential to specific groups of users, while some amplifications in headings may permit full consistency where variations are not excludable.

Reaching agreement among libraries contributing to the catalog base should permit development of the single bibliographic record file. This does not, however, resolve the greater difficulties of cataloging variations among using libraries, which, so long as card catalogs are in use, will continue to vary such records to provide local file consistency. Such variations may well continue to inhibit the effective sharing of resources. The freezing of card catalogs and use of machine records for new materials appears possible in some large libraries in a not too distant future, but local manual files are likely to continue in use in smaller libraries for an indefinite period. While development of options to the card catalog should be accelerated, during the period of change the problem of unique identification of specific items remains.

To insure identification within existing variants, use of a unique identifying number, to be included in all bibliographic records, would appear essential. Providing maximum efficiency in machine search as well as the absolute identification required for effective resource sharing, this unique number could be developed from the LC card number scheme, but broadest possible application of the system (including commercial ordering and international exchange) suggests that application of the international standard numbers system would prove most effective over time. When available, such numbers are now included in MARC data, but rapid expansion and improvement in U.S. applications of the numbering systems are essential for effective use.

Developing an on-line bibliographic data base which is timely, easily accessed, comprehensive in coverage and consistent in quality, then, is the first objective of a national bibliographic system. Among other services, such a data base could provide:

1. Maximum cost effectiveness for local library control of materials.
2. Improved access to local materials.

3. Rapid, efficient identification both of specific materials and of availability of materials in specific subject areas (for acquisition, reference, interlibrary loan, etc.).
4. A potential for derivative files which could permit:
 - a. More cost-effective automation of local library processes.
 - b. The needed basis for more efficient and feasible cooperative collection development, and shared resources.

Utilization of these on-line bibliographic records, and services deriving from them, would be regional functions of the system.

Location Tools

Local availability of material obviously provides the optimum service to users, and it seems apparent that, at least until such time as full text surrogates are on-line or otherwise immediately producible, individual libraries will continue to acquire and lend materials in heavy local demand. Auxiliary resources, peripheral and little used materials, become areas for acquisition decisions. To make these decisions rational and cost effective, guaranteed availability of materials from another source is a matter of prime consideration. A National Location Register, on-line, could provide locations for specific items as well as conditions for their use. Designation of Resource Libraries could provide a guarantee of their availability.

It is expected that the full bibliographic data base will be maintained on-line at the national level of the National Bibliographic System, as a permanent file. A National Location Register could be created from this base in one of two ways:

1. By appending locations information to the individual records within the existing data base; or
2. By developing a separate file or register, keying location information to the unique identifying number, or, lacking that, to a truncated record including only author, title, and classification numbers.

In either method, holdings of national resource libraries should be specifically identified. Regional Centers should enter regional symbols to indicate that the item is also held on a lower level. All holdings records should be coded to show availability within a guaranteed access collection. (See Chapter 5 for a discussion of designated Resource Libraries providing guaranteed access to materials.) Specific locations of regional holdings would be determined from the regional catalog file.

Although some records for older materials will be entered in the bibliographic files as required, the files are necessarily and primarily forward files (i.e. based on current cataloging), and the limited depth of the MARC data base which provides the starting point in development, will, for some future time, constrain the value of the data base as a national location tool for retrospective materials.

While development of an on-going location register for materials in the MARC format bibliographic files is recommended, several options for providing the required location information for earlier imprints can be considered and are fully discussed in Appendix F. In brief, these options include development of an on-line truncated entry record for post-1955 titles in a national file, or manual access (at the regional level) to the current National Union Catalog for all non-MARC materials contained in it. Use of the Mansell catalogs at the regional level, for all pre-1956 imprints, is recommended. Decisions with regard to on-line vs. manual access to post-1955

non-MARC materials will essentially be tied to costs, technology, and the needs demonstrated by monitoring of the Resource System.

Retrospective Conversion of Bibliographic Records

A substantial amount of attention has been given to the conversion of retrospective bibliographic records to the machine-readable MARC format.³⁴ In summarizing major conclusions and recommendations on the national aspects of conversion and use of such records, the 1973 report notes:

"It is feasible to define the characteristics of a machine-readable NUC report at a lower level than the full MARC format."³⁵

"Converting NUC report and master index records for LC non-MARC records to machine-readable form create a data base that could be searched by nonconventional access points (e.g., language, imprint date, geographic area) ... The NUC data base might eventually form the nucleus of an on-line network of regional bibliographic centers."³⁶

Several advantages accrue to the early development of a comprehensive bibliographic data base which incorporates earlier imprints. These include:

1. The earlier abandonment of card catalogs and use of the single bibliographic record.

³⁴ See Conversion of Retrospective Catalog Records to Machine-Readable Form, Washington, D.C.: Library of Congress, 1969; Avram, Henriette D., RECON Pilot Project, Washington, D.C.: Library of Congress, 1972; and Rather, John C. and Avram, Henriette D., eds., National Aspects of Creating and Using MARC/RECON Records, Washington, D.C.: Library of Congress, 1973.

³⁵ Rather and Avram, *Ibid.*

³⁶ *Ibid.*

At the present time, only a relatively few very large libraries have been able to afford the cost for conversion of their catalogs to machine readable form to replace the need for card catalogs. Development of local computer records of library holdings becomes more feasible when a comprehensive and authoritative bibliographic record file is available. Other options to the card catalog, such as computer produced book or film catalogs are also more cheaply produced by matching items in the data base and off-loading the pertinent records on magnetic tape.

2. The possibility for providing more comprehensive location information, particularly the holdings of smaller libraries.

Few of the existing location tools provide for holdings from smaller libraries, with the result that requests for materials needed in interlibrary loan have been increasingly channeled to the larger libraries for which location information is available. Nationwide resource sharing is only possible when the smaller libraries also have an opportunity to contribute to the system. Studies of overlap in collections tend to indicate that the ability of smaller libraries to contribute to a total system may be greater than popularly assumed.

Coordination in the conversion of such retrospective (non-MARC) records should be a responsibility of the National Bibliographic System.

The National Union List of Serials

Use of serials, particularly periodicals, presents a somewhat different pattern from that of other library materials. The size of stock in periodical holdings varies substantially by type of library, but even the largest research libraries have been unable to assemble as many as half of the serials titles in

existence. Yet demand for a wide variety of periodical materials is heavy, and substantially over half of all interlibrary loan requests are for periodical materials, ranging from about one-third in public libraries to 85 percent in government and special libraries.³⁷ About 85 percent of periodicals requests are filled by photocopies of articles.³⁸

Development of a national periodicals resources system has been proposed in a recent Westat study³⁹ for the Association of Research Libraries, and suggestions for its inclusion in the National Library Network have been discussed in Chapter 5. The proposed system would provide for a comprehensive collection of periodicals (40-50,000 titles) and provision of photocopies of articles directly to libraries requesting them. The system would not incorporate a retrospective collection of materials, but could provide referral services for such materials. Within a period of less than ten years, it is anticipated that such a system could provide a substantial proportion of the article photocopies which make up a high percentage of all interlibrary loan requests.

Should such a system be developed concurrently with the National Library Network, location information for current periodical materials would assume considerably less importance. Locations for serials other than periodicals, for sources of loans for original periodical materials, and for retrospective holdings of periodical materials, however, would continue to be necessary. If the periodicals system is activated, such holdings information could be appended

³⁷Osborn, Andrew D., Serial Publications: Their Place and Treatment in Libraries, 2nd ed., Chicago, Illinois: American Library Association, 1973.

³⁸Palmour, et. al. Interlibrary Loans in Academic Libraries, Op Cit.

³⁹Palmour, et. al. Access to Periodical Resources. Op. Cit.

to the serials bibliographic file; if not, a separate Union List of Serials keyed to the International Standard Serials Number (ISSN) is suggested for more efficient searching. Holdings entries similar to those suggested for the National Location Register should apply. In all cases, however, holdings entries should be coded to indicate whether original materials will be loaned or photocopies provided.

Indexes and abstracts of periodical articles included in the Reference Files (See Appendix F) should also utilize the ISSN as the basic identifier with additional number groups appended to indicate issues and article. Such combined keying should provide rapid, efficient location of identified articles.

6.7.3 Supportive Files

The Reference Files

The necessity for improved access to periodical articles, research and government reports, and other non-book print materials has been noted in earlier sections. Coordination in the development of reference files including abstracts, indexes, etc. should be a responsibility of the national level of the National Bibliographic System. Such development should be undertaken in cooperation with governmental agencies and profit and non-profit commercial organizations currently providing such services. Here, the goal of the National activity will be to encourage cooperation, and insure comprehensive, non-duplicative coverage of materials in standardized formats with compatible search patterns, to assure full access to increasingly vital sources of information. Additional discussion of the reference files will be found in Appendix F.

The Interactive Order File

Machine processing costs have declined per unit of activity, while human labor costs have risen distinctly in the last decade. Personnel costs represent an important part of total library expenditures, and repetitive, error prone clerical tasks can frequently be performed faster, more efficiently, and more cost effectively by machines than by people. An example of this is the ordering of materials by local libraries. Large amounts of professional time are spent in searching a variety of tools for the location of materials. Development of an interactive order file, which could display, in response to a number of differing search strategies, the titles currently available from vendors and publishers, with pertinent ordering data, and deliver an order for materials at the appropriate vendor/publisher terminal, could much reduce the labor intensity of ordering tasks, the prolific files spawned, and the time required to get orders to vendors.

Such an activity could not in itself justify development of the necessary communications and equipment network. Given an existing network, however, the addition of such a service could well prove cost effective to libraries. Generation and maintenance of the required data base of ordering information would naturally be the responsibility of the publishers and vendors being serviced by it. The role of the NLN here would be the development of standards and controls for the system, which could operate essentially as a contract service of the Bibliographic System network.

5.8 The Regional Components of the National Bibliographic System: A Regional Bibliographic Model

Regional Library Support Centers (RLSCs) will provide the focus of interaction between libraries and the national network. Regional components of the Bibliographic System, within this Regional Library Support Center, will develop on-line regional catalogs and in-process files for shared cataloging and technical support to libraries within the region. They will facilitate resource sharing by providing various kinds of access to location information, and by providing referrals for loan requests both within and beyond the region.

Bibliographic components at the regional level include:

1. The Bibliographic Center, responsible for location of materials and referral of requests.
2. The Technical Processing Support Center, where catalog card production and other technical processing support services are performed or coordinated.
3. The Coordination Office, where regional data bases are planned, developed, and controlled.

6.8.1 The Regional Bibliographic Center

Designed as a location and referral center for borrowing materials, initial functions will not differ appreciably from those of current manually operated centers, although use of manual tools will diminish as on-line catalog files are developed. Each center will house such basic verification and location tools as the National Union Catalog (NUC), NUC Pre-1956 Imprints (as available), the National Union List of Serials and New Serial Titles, etc. as well as available union lists and catalogs of libraries within the resource zones and region. Special effort should be made to acquire

or develop some catalog access to collections of the designated guaranteed access resources.

Should designated resource center circulation systems (discussed below) be developed, or a retrospective conversion of NUC records to machine-readable form be undertaken, searchers in the center would use these on-line files as basic search tools instead of the manual tools, or as supplements to them. Regional catalog files will also be utilized as they are developed, with relevant holdings records in currently operating machine-readable systems integrated into them.

Various channels of access to the Regional Bibliographic Centers were outlined in Figure 4-8. In general, requests will move through the state system to the state node of the resource zone. Requests unfilled at the state node will be circulated to other nodes of the zone and then forwarded to the Regional Bibliographic Center, or forwarded directly to the Center, at the option of the state node. No verification of requests (beyond local level verification where possible) will be accomplished before the regional center level. Requests reaching the Center will be searched against all available location sources and forwarded to the appropriate location for direct supply to the original requesting library. Requests not fillable will be verified if possible and if not available within the region, forwarded to the appropriate regional center (for materials located within other guaranteed resource facilities) or to the National Bibliographic Center for materials not located. Requests not filled at the regional level will be identified and information supplied to the collection development office of the regional Resource System node.

6.8.2 The Technical Support Center

Off-line functions of the automated cataloging system such as production of catalog cards, spine labels, book or film

catalogs, shelf lists, etc., will be performed in a technical support facility located at the regional computer center. Terminals there will also permit on-line cataloging for libraries within the region which lack terminals of their own or access to other on-line facilities for their processing.

6.8.3 The Regional Data Bases

While most data bases will be developed at the national level, regional bibliographic nodes will also develop pertinent regional data bases. Most important of these are the regional catalog file and the in-process file. While information files of regional importance may well be developed and added at a later date, files of this type will be responsive to regional demand or need and are not further considered here.

Development of circulation files for zonal Resource Centers and for regional resources is considered a relevant early option.

The Regional Catalog File

In early stages of development of the NLN, it is expected that catalog cards will continue to provide the standard local bibliographic control for most library materials. Consequently, one of the basic initial services of the regional bibliographic components will be the shared cataloging system, similar in concept to those already developed in several parts of the country. Shared-cataloging and regionalized technical support provide a cost-effective method for building the comprehensive regional data bases required for optimal resource development and resource sharing.

At inception of the Support Center, computer facilities there will be supplied with magnetic tapes containing the full MARC data base to date, and weekly tapes of new MARC format records will be supplied thereafter. Centers will also be provided with programs for utilizing this material in the cataloging of local library materials, for generating an on-line file of all records used with holdings notations for specific titles, and for off-line production of catalog cards at local library facilities with such resources or within the technical support facility noted above. Programs shall also provide capabilities for off-line computer produced catalogs, shelf lists, etc., and other records of holdings for local libraries or library systems.

To access the cataloging system, a cataloger will utilize a cathode ray terminal (CRT) which will supply an image of the pertinent bibliographic record in LC card format for verification of the item by the cataloger. If the record matches the item and no changes are desired, a print button will be pushed and an order produced at the Technical Support Center for the set of LC-format cards required.

Should it be desirable (or necessary for local file consistency) to change any of the contents of the record, the record will be recalled in MARC format and changes keyed in. While the print button would again record the order for cards and the desired content on magnetic tape at the Technical Support Center for off-line production of catalog cards, alterations in card content or pre-ordered changes in card format will be at extra cost to the ordering library.

The first time a MARC record is utilized it will be added to the regional catalog file and holdings information appended. Subsequent users will catalog from the catalog file record and add holdings information to the established record.

In no case will content changes input by catalogers alter the MARC record. Where errors in the MARC record are noted, the record will be flagged for the attention of the Regional Center, which will notify the LC/MARC Editorial Office. Required corrections will then be entered in the next weekly tape by the LC/MARC Editorial office, and corrections made in national and regional data bases. Where content changes are due to errors in MARC records, no charges will be made to using libraries. Unused MARC records will be periodically purged. Should the MARC record be needed after the purge date, it will be accessed from the national bibliographic data file, which will retain all records permanently.

Input of the total existing MARC data base at the opening of service will provide a substantial portion of MARC records for materials already cataloged in the using libraries. It is anticipated that those designated resource libraries within the region providing guaranteed access to materials will search the full base for items held, add these records (without, of course, accompanying card orders) to the regional catalog file, and record holdings information. Other libraries will also have the option of doing so. In this manner at least partial holdings records will be available for machine location search at an early date.

Obviously until such time as MARC records are available for almost all items to be cataloged, there will be times when the cataloger will find no record either in the catalog or in the MARC file. In these instances the cataloger can order a MARC record format to be displayed, and key in the data in the appropriate fields. Although catalog cards from such a record could be produced in the normal manner, the record will not be input into the regional file; instead it will be recorded on magnetic tape at the technical support facility. While such records are being created in fairly substantial numbers, they will be forwarded at frequent intervals, in batches, to the LC/MARC Editorial office for editing. Here the record will be checked against appropriate authority files, as well as for completeness, proper format, and tagging.

Content data cannot be checked. After editing, the original or corrected record will be coded to indicate original cataloging and returned to the pertinent regional center, where it will be entered into the catalog file. LC/MARC may also enter the record in the next weekly tape if desirable. If a subsequent MARC generated record for the same item is produced, the MARC record will supersede the original cataloging record which will be purged from the catalog file. Holdings entered with the record will be transferred to the new record.

When a cataloger searching for an item locates a non-MARC original cataloging record, the original record can be utilized or changes made for card copy as above. Holdings information will be appended to the existing catalog file record. If errors are noted in the content of the first record, the Regional Center will be notified, and will enter necessary corrections, after verification, in the catalog file. Rapid development of a comprehensive national bibliographic data file will greatly reduce the amount of original cataloging required.

In addition to utilizing the regional catalog file for cataloging purposes, locations information appended to the records will be available at any terminal in the regional system. Holdings records of resource libraries will be coded, so that libraries making decisions concerning materials acquisitions can be aware that access to the item is guaranteed. (It is important to remember that the concept of "guaranteed access" used in this study is that the resource library owns the item and will lend it.) Such holdings records can also be utilized to locate materials for local or intra-state sharing of materials.

Should a decision be made to convert retrospective NUC records, tapes for these holdings could also be entered in regional computer systems and holdings records entered in a regional union catalog file. After a prescribed period, unused records could be

purged from the system, and access to NUC records not held in the regional file would be through the national file which would be permanent. On-line access to regional holdings for all imprint dates (after 1955) would permit machine searching for most location records and reduce the functions of the regional bibliographic center to switching operations, referrals for materials not held or not available in the region, and searches for libraries without terminals of other access to the system, and for materials not held in the data base.

Integration of Existing Cataloging Systems

A number of machine-readable cataloging systems are already in operation in individual libraries and some areas throughout the United States. Most of these systems utilize the MARC record, in some degree, as a cataloging source for those titles included within the data base. In some cases, even where the MARC record is utilized, substantial variations are entered.

Since an effective national program for processing and resource sharing should involve all libraries of all types, efforts should be made to bring such systems within the regional organizations and to establish some patterns for coordination and consistency. Where a substantial part of the region is already involved in a cooperative effort, representatives of various library groups throughout the region should make the decision as to whether such an operating system should become the base of bibliographic support for the region. If this decision is made, action should be taken to make such changes in the on-going system as are necessary for inter-regional compatibility and consistency.

In regions where several systems are operational, decisions on merger, choice of one system, development of a new system, or operation of multiple systems must be made by intra-regional components. Should multiple systems remain in operation

within the region, each system would be requested to provide tapes to the regional center which would check them against MARC or NUC (if available) tapes to create the regional bibliographic file necessary for location of materials and regional resource sharing. This would be a costly operation, however, and since the Regional Center would lack the cost recovery which may be expected with a regional cataloging system, feasibility would have to be reviewed. Every effort should be made to create a strong feeling of cooperation within developing regions, to insure development of integrated systems.

Although this study provides suggested models for regional service and channels of access to services and resources, it is recognized that actual regional developments will be varied by existing systems and other factors. However the pieces are put together to accommodate these factors, it must be remembered that compatibility with the systems of other regions, and consistency in bibliographic records to insure unique identification of materials, are requisites to development of a national network.

The In-Process File

Current acquisitions operations are labor intensive. A great deal of paper work is generated and numerous files developed. Machine processing of this operation promises more efficient local handling of the acquisitions operation. Development of a regional on-line in-process file system should also enable libraries to know whether another library has ordered an item to permit effective local acquisitions decisions. Obviously the knowledge that an item has been ordered by another library would not and should not prevent local libraries from purchasing the same item unless it is a questionable acquisition by virtue of its low use and high cost. Acquisitions librarians, however, may well use the materials orders of other libraries as guides to their own acquisitions.

Development of the regional in-process files in connection with an interactive order system with vendors and publishers would eliminate the need for mailing of orders, claims notices, cancellations, etc. However, even without the interactive order system, the machine processing of orders, claims and notices by computer output of the required data on pertinent forms can greatly lower the clerical load and provide greater accuracy in information. No manual files will be required; the in-process file can be updated as required to show the status of any order at a given time. Upon cataloging the ordered item after receipt, or upon cancellation of the order, the record will be purged from the on-line file. Associated accounting records can either be kept in local computer systems, or fed into off-line regional files from which would be generated required accounting and payment records.

On-Line Circulation Files

One of the sources of delay in current interlibrary loan patterns is the handling of requests once they are received by the library to which the request for loan has been made. Upon receipt, with or without verification, the catalog of the lending institution must be checked to determine whether or not the item is owned by the facility. In the case of large multi-facility libraries, the departmental or branch library holding the item must be determined, as well as whether or not the item is, in fact, available. If the requested item is not available, the request is then returned to the borrowing library where, based on available records or experience, another attempt may be made. Depending upon the urgency of need and the time constraints of the user, most libraries will make repeated attempts to secure the material.

Throughout the process, paperwork is generated. The requesting library must create a file of requests and their status, and a file of materials borrowed to insure their timely return. Lending libraries must maintain files of materials loaned, their due dates, and records of their return.

Development of an on-line circulation system that would send requests by terminal input directly to the resource library which not only holds the material but which has it available, would certainly expedite the supply of needed materials. In addition, charge-outs entered in the circulation system would provide a record both for borrowing and lending libraries and eliminate the need for a number of manual files. Reminders of materials about to become due and notices of overdue materials could be machine-generated automatically.

Combining in a single on-line system the circulation files of the group of zonal Resource Centers which comprise the basic delivery level for the Resource System, however, creates several problems which make the multi-resource circulation system not feasible at the present time. Primary among these is the high local level of use of resources at the libraries. Initial development of the resource zone will depend entirely upon existing resource libraries; such libraries have local clientele whose needs must be met, and it must be anticipated that the loan of materials beyond the local user group will represent only a very small part of the total use and circulation of materials. Thus, development of a central, coordinated data base of all guaranteed resource materials in a zone would necessitate continuous local use. Communications cost for this continuous local access would be appreciable; in addition, the large volume of interactions required for such local use by multiple facilities would necessitate use of expensive equipment with substantial search capacities.

In addition there are the difficulties of combining inconsistent data so that requestors can identify the needed item. Use of the regional catalog file as the circulation base would make identification of materials more consistent, but the problems of cost because of local use would continue to apply.

Several possibilities for development of limited circulation systems do, however, appear more feasible.

1. As systems monitors provide an accurate analysis of needs at zonal levels, additions will be made to relevant collections to reflect such needs. This should include the purchase of additional copies of heavily used materials, so that such materials could be available to users without undue delay. These materials might well be designated "dedicated" materials, held in closed stacks, and available to all users within a zone on an equal basis (that is, in local terms, essentially borrowed from an outside resource). As the volume of dedicated resource materials reached a level warranting such access, a circulation system for heavily used materials, providing the needed immediate availability search, could then be developed.
2. Local circulation systems, where they do not already exist, could be developed at zonal and regional Resource Libraries, with support from the Regional Library Support Centers. These circulation systems would provide data bases utilizing local shared computer facilities. Terminals at each zonal Resource Center should be able to search and enter holds in the circulation system of every other zonal resource and of the regional Resource Library. Access to all zonal and regional resource libraries should also be possible from the Regional Bibliographic Center, which could thus search and request materials for one zone from another zone.

Since use of local circulation systems would again be predominantly local use, a substantial part of the cost of operation should be borne by the resource facility. However, developmental support might well be expected from the national network. The cost of individual library development of a machine readable record of holdings for circulation purposes might well be expected to exceed \$150,000 - \$250,000 per library. A coordinated program for development should reduce marginal costs as bases are build, but total costs would probably still exceed \$6,000,000 for the proposed 60 initial Resource Libraries.

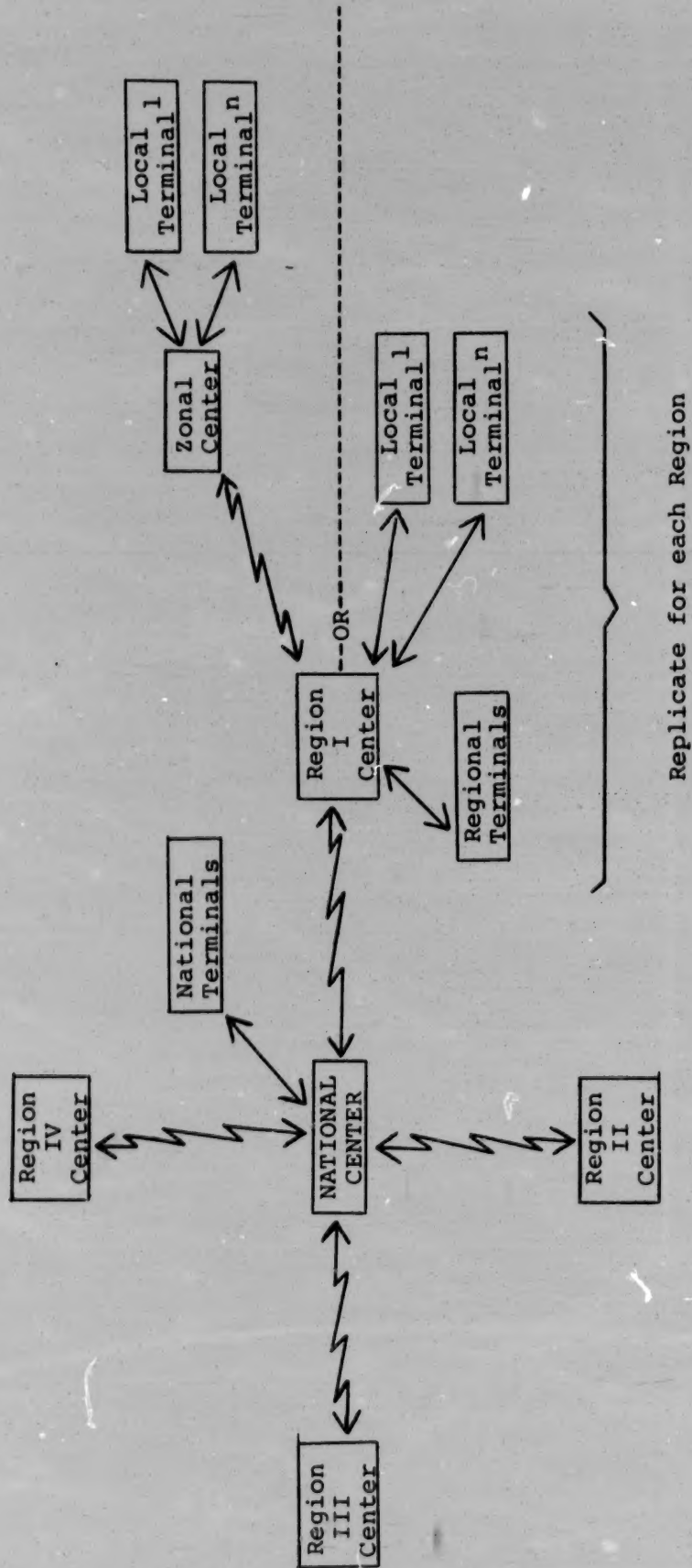
In an earlier section we have discussed the possibilities for retrospective conversion of National Union Catalog records to machine-readable form. If comprehensive circulation systems are to be developed, the most cost-effective method nationally might be development and utilization of the NUC retrospective conversion. Individual libraries could be provided with tapes of the converted records from which they could search and access into their own files those records matching their holdings. Use of the centrally converted records could also insure the necessary consistency for search required for maximum efficiency in the system, with local libraries adding such variations as permit most effective local search for the item.

6.8.4 The Computer Network

Although design of a computer network, which is part of the total communications network, does not fall within the scope of this study, some conceptual framework for the network was necessary to develop service patterns, channels of access, etc. A schematic of this conceptual network which will service the NLN is presented in Figure 6-1. As may be noted, all regional centers will be linked together through the national computer center. A limited number of terminals will be available at the national level, principally at the national bibliographic center but also at designated national resource facilities.

Similarly a limited number of terminals will be provided at the regional level to the Regional Bibliographic Center, the Technical Support Center, and designated resource facilities. The total system should support a maximum level of about 4,000 terminals. Two methods for connection of local terminals to the regional center are possible: one is to connect each terminal directly to the regional center by voice communications (telephone) lines; the other is to introduce a zonal center mini-computer to act as a multiplexor for the terminals it would serve. Communications to the zonal node would be over shorter line voice grade

Figure 6-1. Conceptual Configuration of the Computer Network for the National Library Network



communication lines, with movement from the zonal center to the regional center over less expensive wide-band digital communication channels. This is in essence similar to a time-sharing node in that it would permit cheaper communications between centers. Introduction of a zonal center would be dependent upon volume of traffic since the costs involved in establishing the additional linkage would have to be balanced against total savings to the system in communications costs.

Location of Computer Centers

A central location within a region would not of itself guarantee the most cost-effective overall operation of the computer system, since despite the greater equalization of communications distances, volume of traffic will impact total communications costs. Location of centers should be skewed toward areas of heavy resource concentration to minimize average costs of communications. This, of course, would advantage those libraries with shorter communications lines as against those located at greater distances, making charges to facilities unequal in unit cost. To mitigate this situation and provide a more equitable payment format while minimizing total system costs, communications charges to using libraries could be based on an average per unit use cost. Additional zone centers, if required, would similarly be located in relation to use patterns.

7. ECONOMICS OF THE NETWORK

An attempt has been made in this chapter to estimate the gross costs of operation of a National Library Network as conceptualized in this study. Since a specific design of systems and services is lacking, these costs must be considered as suggestive only, and cannot be considered as budget figures for development. All costs have been based on available 1974 estimates without adjustment for future inflation. An inflation rate of 5-10 percent per year should be anticipated on most cost elements.

It is expected that development costs will be borne by the federal government, as well as operating costs of national and regional centers, and payments to designated resource libraries. Library communications costs for the computer network should, for the most part, be recovered from user libraries or states, and the cost of products of the Regional Technical Support Center (i.e., catalog cards, book or film catalogs, magnetic tapes, etc.) should also be paid by user libraries and/or systems. Although communications costs have been estimated, no product costs or revenues have been included.

Services developed with the private sector should be funded by the private sector or jointly by the private sector and the federal government. Government expenditures in such instances should be primarily for development of formats, standards, etc. No attempt has been made here to calculate the costs of developing such private sector or joint services. In some cases it may be anticipated that the National Library Network might well receive some revenue from the private sector for channeling commercial services to libraries through the network.

7.1 Elements for Costing

Costs for the National Library Network were estimated on the basis of four segments:

1. Operation of the National and Regional Centers.
2. Programs for resource support providing guaranteed access to materials.
3. Costs for the automated systems.
4. Cost of input to the data bases.

With the exception of such one-time costs as software development and the NUC conversion to machine-readable records, all of the costs discussed in this chapter might properly be termed operational costs. No estimates have been made for such other developmental costs as design of communications systems and initial implementation and organization of the network, although first year operational costs of the National Center might perhaps be considered in this category.

7.2 Costs for Operation of the Centers

7.2.1 The National Center

Facility

Since the headquarters operation is primarily an office operation, working in close cooperation with the "national coordinating agency" and the national libraries, location within the Washington area appears most reasonable. An initial need for about

3,000 square feet of space to house the projected staff and services is estimated, but with expansion of services additional space will be required. Lease agreements should consider possibilities for this expansion at the initial location so as to permit the cost advantages of long term leasing and eliminate the costs of a move when more space is needed.

The current average cost for office space in Washington, including utilities, maintenance, cleaning, etc., is about \$7.50 per square foot. An initial cost for furnishings of \$ 30,000, amortized over a ten-year period, brings this cost, furnished, to \$8.50 per square foot per year, or a total annual facility cost of \$25,000.

Staff

Initial staffing at the National Center may be expected to include:

Director of the NLN

Assistant Director for Administration, including Personnel and Fiscal

Assistant Director for Planning and Coordination

Deputy Director for Operations

Chief, Bibliographic System

Chief, Resource System

Chief, Communications Systems

In addition to these senior professionals, it is anticipated that seven junior professionals, two nonprofessionals (for operation of the bibliographic referral center), and seven clerical employees will be required.

Estimated salary expenditures (showing average rates for each category) are:

7 senior professionals @ \$24,000 (range \$20,000 - \$36,000)	\$168,000
7 junior professionals @ \$14,650 (range \$12,000 - \$20,000)	102,550
2 nonprofessionals @ \$10,000	20,000
7 clericals @ \$10,000	70,000
	<u>\$360,550</u>
25% fringe benefits	90,125
Total salary costs	<u>\$450,675</u>

Travel costs for senior professionals, who are expected to coordinate field activities, are estimated at \$10,000 per year. Total National Center costs are summarized as follows:

Facility	\$ 25,500
Staff	450,675
Travel	10,000
	<u>\$486,175</u>
Other (2%)	9,723
	<u>\$495,998</u>

An additional two percent has been added to cover costs of supplies, communications, and miscellaneous costs, resulting in an annual National Center estimated operating cost of about one-half million dollars.

Costs for the computer center at the national level are included in Section 7.4, Costs for the Automated System.

A comparison of projected staffing with the organizational charts provided in Chapter 4 shows that all anticipated functions of the Network are not included in the original implementation schedule. Certainly first year efforts should be devoted to operational activities in organizing and establishing the channels of access, and identifying the components of the resource system.

Research plays an important role in evolution of the network and personnel for this purpose should be added as system monitoring provides data for evaluation. Development of new techniques, programs, etc. should also be initiated at an early stage. Some increases in total annual funding should be anticipated as the system evolves.

7.2.2 The Regional Library Support Centers

Facility

Space requirements for the Regional Library Support Centers are estimated at 5,000 square feet, based on anticipated initial staff and services. While costs for leasing these facilities will undoubtedly vary in the different areas, a cost of \$5.50 per square foot per year appears to provide a reasonable average. An initial investment of \$50,000 in furnishings, amortized over 10 years would again add \$1.00 per square foot per year, providing an annual square foot cost of \$6.50 or \$32,500 per regional center.

Staff

Initial staffing at each Regional Center may be expected to include:

Director of the Center

Assistant Director for Administration

Assistant Director for Planning, Coordination, and
Education

Chief, Bibliographic Node

Chief, Resource Branch

Chief, Communications

Four junior professionals and six clerical employees are anticipated within the office organization, and an additional junior professional (administrative), two professionals (bibliographic) and 20 nonprofessionals are required to operate the regional bibliographic referral facility. (The personnel requirements in this section may decline as the on-line data system grows, so that libraries with individual terminals are able to do most of their own searching and the facility becomes primarily a monitoring and switching center.)

The regional program for education and training of library personnel, and educational programs for users, would require one junior professional with administrative responsibilities, and an additional three professionals on a slightly lower salary level. Since much of the activity of this group would be field work, an annual travel expense of \$15,000 has been estimated. Other costs, including travel for senior professionals, supplies, communications, and miscellaneous expenses, are calculated at three percent of other Center expenditures, since travel of senior professionals has not been included as a separate item.

The annual budget for each Regional Library Support Center is thus estimated at about \$700,000. This was calculated as follows:

6 senior professionals @ average \$20,000	\$120,000
(Range \$16,000 - \$27,500)	
6 junior professionals @ average \$14,000	84,000
5 professionals @ average \$12,000	60,000
20 nonprofessionals @ average \$10,000	200,000
6 clerical employees @ average \$8,000	48,000
Total salaries	\$512,000
25% fringe benefits	128,000
Total employee cost	\$640,000
Travel expenses education team	15,000
Subtotal	\$655,000
Facility and furnishings	32,500
	\$687,500
3% of total for other costs	20,625
Total Regional Center Costs	\$708,125

Salaries at the regional centers have been estimated at slightly lower levels than those at the national center because of an assumed cost of living differential between Washington, D.C., and regional locations (not selected here). Computer center and associated operational costs for the Regional Centers are included in 7.4.

7.3 Programs for Resource Support

A program for support of identified resource libraries, designed to provide guaranteed access to materials for all users, has been discussed in Chapter 5. Costs for providing this resource support are covered in this section.

7.3.1 Resource Center Support

The base for the resource program is identification of strong resource libraries in each state which will agree to provide materials on demand through designated channels of access. In addition to these initial 50 state resource libraries, it is assumed that one particularly strong resource facility will be identified in each region, and six facilities of national stature identified as national resource libraries. In support of these resource facilities, each is assumed to receive a categorical grant of \$25,000 per year to be utilized by the library to enhance its ability to perform the service required. This could include additions to collection, staff, or other facilities. Monitoring of fill rates and speed of delivery may indicate the need for additional directed grants for collection building, and/or some stipulations on use of grant money to meet developing standards of service.

Transaction charges for each item loaned will also be paid at the following assumed rates:

\$2.00 per transaction for libraries identified at the zonal (aggregated states) level, for each item loaned outside the home state.

\$2.50 per transaction for libraries identified as regional resource libraries, for each item loaned outside the home state.

\$3.00 per transaction for libraries identified as national resource libraries, for each item loaned within the system.

It is anticipated that on the average, about 15,000 requests for materials will enter the system (above the state level) from each state in early years (based on an extrapolation of ILL requests reported unfilled in several state library systems. It is not possible, of course, to predict this level of demand with any degree of accuracy.) Of this total of 750,000 anticipated requests in the system, 525,000 or 70 percent are expected to be filled at the zonal level, an additional 23 percent or 175,000 at the regional level, and seven percent or 50,000 at the national level.

Total library resource support required may be estimated, subject to the assumptions, as follows:

Categorical support for	
60 libraries @ \$25,000 each	\$1,500,000
Transaction fees	
525,000 @ \$2.00 each	1,050,000
175,000 @ \$2.50 each	437,500
50,000 @ \$3.00 each	150,000
Total Resource Support	<u>\$3,137,500</u>

7.3.2 Last Copy Depositories

As discussed in Chapter 5, each region should establish a last copy depository which will insure continued availability of items purged from individual libraries. This is basically a warehousing project, with a limited amount of demand expected.

Estimated costs for each Depository include:

Facility

Over a prolonged period of time, the volume of materials held in a last copy depository would be substantial, and either additional space would be required for storage or some program for photo-reduction introduced. Initially, a warehouse of about 10,000 square feet of floor space is recommended. This should be procurable at a cost of about \$3.00 per square foot averaged over the regions. In addition, a cost of \$0.75 per square foot has been calculated to cover costs of shelving and other equipment and \$0.60 to cover costs of utilities, maintenance, cleaning, etc., for a total cost per square foot of \$4.35 or \$43,500 per year.

Staff

Staff requirements in early years are estimated at one professional and four nonprofessional employees for a total cost of \$75,000 including fringe benefits. An additional five percent has been added to cover costs of communications, delivery, supplies, and miscellaneous expenses. The increased percentage for these costs at the last copy depositories represents expenditures for handling and controlling the materials stored there, and for shipping loaned materials to users. Costs of shipments of materials to the depositories are not included, since it is expected that forwarding libraries will cover such shipment costs.

The annual budget for each facility may be estimated as follows:

1 professional @ \$20,000	\$ 20,000
4 nonprofessionals @ \$10,000	40,000
	60,000
25% fringe benefits	15,000
	\$ 75,000
Facility	43,500
	\$118,500
5% other costs	5,925
Total Cost per Last Copy Depository	\$124,425

7.4 The Automated System

The automated system will be composed of five nodes: one at each regional center and one at the national center. At each node, a computer capable of handling 10-14,000 searches per day will be installed at a monthly rental of \$40,000. This is considered adequate for initial operation, but additional capacity and equipment will be required as the system develops. Staffing and other operating expenses of the computer center are calculated to cost 1 1/2 times the monthly rental, or an additional \$60,000 per month.

Space requirements are estimated at 10,000 square feet, at a rate of \$4.00 per square foot. An additional cost of \$1.00 per square foot is estimated to cover utilities, air conditioning electricity, etc., for a total square foot charge of \$5.00 per year.

Annual costs per computer center of \$1,250,000 include:

Facility	\$ 50,000
Computer rental	480,000
Operating expenditures	720,000
	\$1,250,000

For the four regional nodes, additional charges for communications of approximately \$400,000 per year and \$350,000 for terminals and maintenance must be added. Since communications expenses and terminal needs will be primarily on the regional level, the total cost is included in these nodes and no communications charges or terminal costs have been included at the national node. It is expected that most of these costs will be reimbursed by the using facilities.

Some additional equipment will be required at the national level to handle the large data base stored there and provide rapid access to it. This will increase expenditures at the national node by about \$300,000 per year, and maintenance of software for the entire system (chargeable at the national level) will add another \$150,000 per year.

Total annual computer costs for the NLN are thus estimated at \$2,000,000 for each of the regional nodes, and \$1,700,000 for the national node.

Software development for the program is estimated at \$2,000,000 to \$2,500,000. Use or adaptation of some existing software might somewhat reduce this cost.

7.5 Cost of Input to Data Bases

Although the National Library Network is regarded as primarily a coordinator, rather than originator, of data bases some cost figures for creation of the data bases considered essential or useful to the system seems relevant in a discussion of network costs. Most important of these is the MARC data base, which is seen as critical to satisfactory development of a national information system.

7.5.1 Expanding the MARC Data Base

It is estimated that about 325,000 items will be cataloged nationwide in 1974, of which approximately 75 percent or about 250,000 titles will be cataloged by the Library of Congress. At the present rate of input, 110,000 of these bibliographic records will be added to the MARC data base during the year.

It has been recommended that the MARC program be expanded by increasing the MARC input to the full level of LC cataloging and coordinating the input from other designated sources. This additional outside input is expected to total about 100,000 records, since NUC records show some current cataloging of earlier imprints, which might well not be included in the present MARC data base of about 450,000 records.

The current average cost of inserting a single MARC record into the data base is estimated at \$3.00 to \$3.50. Expanding the current input rate from 110,000 to the 250,000 records estimated to cover current LC cataloging may be expected to realize some economies, in improved utilization of equipment by moving to shift operation and in utilization of personnel by incorporating on-line input techniques, so the \$3.00 rate may be a feasible basis for calculating increased costs. Additional appropriations to the MARC program of approximately \$420,000 per year, at current rates, would thus be necessary to cover annual input of the 140,000 additional records not now included in the MARC data base.

The approximately 100,000 records input from other sources may be expected to include some original cataloging entries through the system, from records for unique titles. Estimating this input at about 10 percent of the total, an additional 90,000 records would be input by the designated libraries. Because of the lower input rate, we may assume the higher input cost of \$3.50, so these 90,000 records would cost approximately \$315,000 annually at current rates.

Unless greater personnel economies in input can be realized through improvements in technology, increases in salary costs of about five percent per year should be anticipated. Future levels of cataloging are not altogether predictable. Although it is estimated that publication increases approximately five percent per year, cataloging levels at LC have declined slightly in recent years since most of the increase is not considered of value there. However, some increase in the levels of outside cataloging at least must be projected.

7.5.2 Retrospective Conversion of the National Union Catalog

So much study and discussion of the feasibility for retrospective conversion of bibliographic records has already occurred that it appears somewhat redundant to discuss the project or its costs within this study.

As noted in Chapter 6, however, the development of a National Union Catalog on-line would be a valuable asset to a National Library Network -- Section 7.2.2 indicates that regional center operating costs may expect to be reduced as more and more records become available in the on-line mode, and less and less manual searching to identify and locate materials is required. The availability of materials to users would be much enhanced.

Records of pre-1956 imprints from the National Union Catalog file are currently being accumulated and published in the National Union Catalog, Pre-1956 Imprints (the Mansell catalog). When completed these volumes should provide a rapid reference tool for access to earlier imprints (about two-thirds of the volumes are already in use). Conversion of this voluminous data into machine readable form is not under consideration. Imprints from 1956 to date are also available in book form in the National Union Catalog, but as with any published catalog, the problems of maintaining currency in holdings information are great, and a computerized catalog is eventually projected. Studies of retrospective conversion, while looking to this particular body of records, have primarily been concerned with conversion in full-MARC format. While this would satisfy many needs which could not be met by input of only NUC data, the lesser costs and substantial benefits associated with the latter method suggest its consideration.

Post-1955 unique records in the NUC are displayed in Table 7-1. By the end of 1974, approximately 550,000 of the LC records reported will be included in the MARC data base. This leaves a total of about 2,000,000 LC records and about 1,500,000 other NUC records as potential for conversion.

Table 7-1. Unique records in the National Union Catalog

Imprint Date	Number of Records Held		
	LC Catalog Records	Other NUC Records ¹	Total Records
1956-62 ²	452,400	327,000	780,000
1963-67	533,060	397,533	930,593
1968	170,855	100,720	271,575
1969	178,267	120,550	298,817
1970	226,175	108,272	334,447
1971	246,675	105,554	352,229
1972 ³	243,753	103,442	347,195
1973	253,360	101,373	354,733
1974	250,000	99,256	349,256
Total	2,554,545	1,464,300	4,018,845

¹ This includes records provided by other libraries.

² Data approximate.

³ All data after 1971 are estimated. Figures given for LC Catalog records cover actual cataloging for the particular year. It may be anticipated that these figures in the NUC would be somewhat larger because of cataloging in any year of previous year imprints. Figures for records from other libraries showed a decrease in 1971 and this decrease (two percent) has been applied to future years.

Cost of an NUC record conversion has been estimated at approximately half of full-MARC costs. Since a massive conversion of this nature could be expected to generate some economies, the minimum figure of \$1.50 may be applied. This produces a total conversion cost of about \$5,250,000.

While some economies might be realized by a massive conversion effort, it would also be possible to convert on a progressive basis, beginning with nonconverted materials of the MARC period. This would probably be a particularly feasible method for conversion if the full-MARC record conversion were considered.

7.5.3 Other Data Bases

Development of some of the other recommended data bases should be at little or no cost to the Network. For example, the Interactive Order File and the Periodical Reference File would both appear to be reasonable efforts for the commercial profit or non-profit services selling a product. In such cases the Network would essentially operate as a concessionaire, providing the channels of communication to these interests for a fee, and providing control and coordination for the services offered. In the case of the Interactive Order File, such coordination could include standardization of the ordering format, introduction of number registers for ordering libraries and publishers and vendors, etc. Development of the Periodical Reference File would also include the need for development of a standard format and thesaurus of search terms as well as elimination of duplications in citations. Fees received from use of this file might well be utilized to support input of missing data to provide comprehensive access to periodical and other non-book print materials.

Estimated Costs of the NLN, First Three Years⁴⁰

It is expected that the National Library Network will be developed in phases over a period of years. Original development should encompass organization of the national Center and coordination of national data bases. The first Regional Library Support Center is projected for operation by the end of the first 18 month period, with an additional Regional Center operational at 12 month intervals.

Costs of development for the first three years, under this schedule, are calculated (in 1974 dollars) as follows:

1st Year (Network development)

80% of costs of National Center	\$ 400,000
50% of software development costs	<u>1,000,000</u>
	\$1,400,000
Additional MARC costs	<u>735,000</u>
	\$2,135,000

Possible:

Retrospective Conversion of NUC records (over 3 years)	<u>1,750,000</u>
	\$3,885,000

⁴⁰ All costs are based on current estimates without adjustment for inflation. An inflation rate of 5-10% per year should be anticipated on most cost elements.

2nd Year (Introduction of 1st Regional Center)

100% of costs National Center	\$ 500,000	
Balance software development	1,000,000	
Operation National Computer Node (6 mos.)	850,000	
Categorical Grants 20 Resource Libraries (6 National, 14 Regional and Zonal)	500,000	
Transaction fees (estimated 1st year one region)	125,000	
	<u>\$2,975,000</u>	-
50% of costs one Regional Center (6 mos.)	350,000	
50% of costs one Regional Computer Node (6 mos.)	1,000,000	
50% of costs one Regional Last Copy Depository (LCD) (6 mos.)	62,000	
	<u>\$4,387,500</u>	-
Total MARC costs (one year)	1,065,000	
	<u>\$5,452,500</u>	-
Possible: NUC Conversion (2nd year)	1,750,000	
	<u>\$7,202,500</u>	-

3rd Year (Introduction of 2nd Regional Center)

100% of Costs National Center	\$ 500,000	
Operation National Computer Node	1,700,000	
Categorical Grants 33 Resource Libraries (6 National, 27 Regional & Zonal)	825,000	
Transaction fees (2 Regions)	525,000	
	<u>\$3,550,000</u>	-
100% of Costs 1st Regional Center	700,000	
50% of Costs 2nd Regional Center	350,000	
100% of Costs 1st Regional Computer Node	2,000,000	
50% of Costs 2nd Regional Computer Node	1,000,000	
100% of Costs 1st Regional LCD	125,000	
50% of Costs 2nd Regional LCD	62,500	
	<u>\$7,787,500</u>	-
Total MARC Costs (one year)	1,065,000	
	<u>\$8,852,500</u>	-
Possible: NUC Conversion (final)	1,750,000	
	<u>\$10,602,500</u>	-

7.7 Funding the Network

Cost figures in this chapter cover only those costs which are identified beyond the state level in the system. Below that level it is expected that states and localities should continue to support their information services. Some benefits, however, should accrue to each state by virtue of support funds paid to the designated state resource library. This support, while making the resource more valuable to the entire zone in which it is providing services, also helps to make individual state resources more responsive to intrastate needs.

The on-line cataloging program is expected to finance the operational costs of the automated system. Experience at OCLC has demonstrated that substantial savings can accrue to the user even after supporting these operational (and in some cases, developmental) costs of the system.

It is recommended that federal and/or foundation funds be solicited to cover all developmental costs of the automated system as well as such one-time costs as the NUC conversion. Foundation funds might also be solicited for initial "seed money" for implementation (e.g. support for the implementation committee and organization of the network) or for special developments such as creation of standard formats for machine-readable reference files, information files, etc. Federal funding should cover all annual operations costs of the system above the state level.

A recent study has indicated that library expenditures in the United States, for all types of libraries including school libraries, total over three billion dollars annually. The proposed federal expenditure represents considerably less than one percent of that total.

8. IMPLEMENTATION

Conferences on networking have accented the need for "grassroots" development in networking systems in order to insure the cooperation so vital to a successful networking effort. This study has recognized the independence of most current library services, and current movements in cooperation which essentially support and extend individual library operations rather than create an interdependent network of library services.

It would appear reasonable that development of patterns of interdependency must come from the local or "grassroots" level and that in no case can the required cooperation in this effort be imposed from the top. It appears equally obvious that before any library committed to support of a local clientele will surrender any part of its autonomy and control to insure performance of its mission, access to materials and services from outside resources must be guaranteed. The National Library Network is thus postulated as a framework to provide those guarantees of materials and services accessibility on national and regional levels which will permit interdependence between levels.

Initiation of national and regional nodes is expected to derive from national activity at the national level. Operational control of regional nodes once established, however, should be responsive to regional developments and organization of interdependent systems so that regional and sub-regional developments may be best supported in a movement toward a nationwide information program.

It is anticipated that the National Commission on Libraries and Information Science would initially act as the "National Library Coordinating Agency" for early development of the National Library Network (NLN). Once the design for the NLN has been accepted, several concurrent steps by the Commission are seen as preliminary:

1. The Commission should initiate draft recommendations for legislation to create the National Library Network as an independent federal or quasi-governmental agency authorized to contract with other agencies, public and private, and to receive funds, grants, and donations from all sources. Federal funding requested to operate the agency should include developmental costs and sustaining funds for operation of the national and regional centers and their programs.
2. An immediate increase in funding for the LC/MARC program should also be recommended so as to begin earliest possible expansion of the MARC data base. Increased funding should include allocations for input from other designated resource libraries.
3. A "Committee for Implementation" should be appointed, including representatives from the Commission, the national libraries, the principal professional associations, commercial publishers and bibliographic services, as well as representatives of the suggested regions and users.

The Committee appointed by the Commission should have responsibility for the following "next" steps:

1. Choosing a director for the NLN who would work with the committee in organizing and implementing the network design.

2. Publicizing the network and its services and developing support from the total information community.
3. Promoting the nomination of regional committees for organization of regional nodes. Coordinating regional components in development of all nodes.
4. Soliciting additional development funds from all possible sources.
5. Developing preliminary educational and training programs for network personnel, and for information services personnel who will be utilizing the network services.
6. Nominating a permanent Board of Directors for the NLN.

8.2 Organization of the Network

Organizational structures of the national and regional nodes of the NLN have been outlined in Chapter 4. Development of the network entity as an independent or quasi-official agency of the federal government was recommended above. State participation within the network is recommended through initiation of a federal-interstate compact for each region. Inclusion of any state within a specific region would be dependent upon signature and ratification by relevant state officials and bodies of the interstate agreement, which should outline responsibilities for both national and state bodies.

"Enactment and ratification of a (interstate) compact will be more complicated than a simple act of incorporation," summarized Harry Martin, in his study of the legal aspects in establishment of a regional interstate library network.⁴¹ "But the

⁴¹ Martin, Harry, Legal Aspects of Establishing a Regional Interstate Library Network, Prepared for SLICE under funding of the Council on Library Resources, February 1974.

results, in the nature of a firmly established, comprehensive interstate library network, should be well worth the effort."

8.3 Funding the National Library Network

As noted in Chapter 7, it is anticipated that organizational costs and operations of the national and regional nodes of the NLN would be supported by continuing federal funds. This includes resource system support through the zonal levels, as well as maintenance of data bases at the national and regional levels. All computer systems costs at the national level would also be supported through federal funding, but computer operations at the regional level are expected to be supported by the components utilizing the system through an equitable cost recovery and charge program.

Costs for future development and operation of reference files (indexes and abstracts), should be borne by the services which input data, which will in turn charge libraries utilizing these services. Development of an interactive order file should also be supported by the publishers and vendors providing input.

Additional developmental funding should be actively solicited from foundations and other possible sources, including industrial users of information services.

Costs for state organizational programs and for development of state node collections to meet a level of state needs are expected to be paid by the states and localities involved, although some federal support for this initial organization program should be sought. States should also be encouraged to seek foundation and industry grants for developments in intrastate networking and improving resources within the state.

8.4 Phases of Development

Expansion of the MARC data base to provide comprehensive bibliographic records should be given first priority in development of the network, since this file is considered critical to the establishment of compatibility between segments of the network.

Second priority should be given to establishment of the national node which would provide the coordination essential to operation of all systems. A single regional node might next be implemented to provide a pilot for development at the regional level. Selection of the regional node for first development should be based on several factors:

1. There should be some pattern of existing or developing regional association.
2. Possibilities of potential conflict with existing systems should be minimal.
3. The components of the zonal and regional divisions must be willing to work together as units of the system and encourage development of the network.
4. The state legislatures involved must be willing to join a federal-interstate compact for the provision of the designated information services.

Once the necessary agreement and cooperation have been achieved, the first modules of service should be implemented. In the bibliographic system, this would be the on-line cataloging capacity, production of catalog cards and other catalog records off-line, and building of the regional catalog file.

The regional bibliographic center should also be concurrently implemented, to provide manual and machine searches for

materials from all possible sources, to provide the best possible location of resources during the early organizational years. At the same time, the resource system should have identified potential Resource Libraries and negotiated contracts for guaranteed access to specified holdings.

Additional modules of service should be added as feasible in terms of development on the national level, and possibilities of utilization on the regional level.

Developing the first regional node as an experimental pilot project should ensure greater compatibility of all nodes as additional regions organize and become operational. Development in regions with multiple existing systems in operation will provide the greatest problems in organization and such nodes will probably require more time to become operational. Where no conflicting systems are operational, use of an existing system as the basic computer node of the region should be possible by developing the necessary measures for insuring compatibility of the existing system with other regional nodes.

8.5 Impact on Existing Systems

It is hoped that evolution of a National Library Network, coordinating the activities of all components of the information community and providing cost-effective services to users in all parts of the United States, would cause "changes in the profession during the next quarter century comparable only to those that occurred in the years 1875-1900 when a group of American pioneers changed the whole character of world librarianship."²

²Becker, Joseph, "Network Synergism," Illinois Libraries 55:5 May 1973.

In general, the NLN is seen as a framework for change in existing systems -- change which is controlled by the requirements of mission fulfillment and directed by the components which are evolving. Proper evolution of the network is dependent, above all, upon common identification of the need for change and common acceptance of the new directions. The system should pose no immediate threats, but depend upon the pressures of needs -- and on those leaders more progressive in seeking new ways to meet the needs -- for shaping and evolving the system. The network should be built on existing systems, encouraging their adaptation, as necessary, to new patterns and more widespread goals.

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APPENDIX A

ESTABLISHING REGIONS FOR RESOURCE AND
BIBLIOGRAPHIC ACTIVITY

APPENDIX A

ESTABLISHING REGIONS FOR RESOURCE AND BIBLIOGRAPHIC ACTIVITY

Any meaningful attempt to divide the country into regions for resource and bibliographic development must necessarily be based on existing library activities and on desired characteristics of the resulting regions. Consideration was first given to current library activities such as existing and planned multi-state library associations (see Figure A-1) and major existing and planned multi-state library consortia (Figure A-2). In search of other factors which might be significant in the determination of regions, potential variables were identified and, where possible, estimates derived for the following: population, area, communication patterns, library volumes, number of libraries, number of states, research population, library volumes per capita, library expenditures, number of unique library titles, and present and projected interlibrary loan demand. Other regional schemes considered included those of the Office of Education, the National Library of Medicine's Regional Medical Library Program, and the patterns of regional Higher Education Commissions.

Further, the stated goals and objectives of the resource and bibliographic network suggest that regions established must meet the following general criteria:

- a. Bibliographic areas large enough to support the necessary equipment, staff, etc., and to provide an adequate data base.
- b. Resource areas large enough to meet a substantial percentage of needs, but small enough to facilitate cooperative acquisitions development and rapid delivery.

Figure A-1. Existing and Planned Regional Library Associations

<u>Library Association</u>	<u>States</u>
Mid Atlantic ¹	Delaware, Maryland, New Jersey, Pennsylvania, West Virginia
Midwest ¹	Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Wisconsin
Mountain Plains	Colorado, Kansas, Nebraska, Nevada, North Dakota, South Dakota, Utah, Wyoming
New England	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
Pacific Northwest	Alaska, Idaho, Montana, Oregon, Washington, (British Columbia)
Southeastern	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia
Southwestern	Arizona, Arkansas, Louisiana, New Mexico, Oklahoma, Texas
California Hawaii New York	} not part of existing or planned Regional Associations

¹ Planned.

Figure A-2. Existing and Planned Multi-State Library Consortia¹

<u>Consortia</u>	<u>States</u> ²
Bibliographical Center for Research, Rocky Mountain Region	Arizona, Colorado, Iowa, Kansas, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Utah, Wyoming
Central States College Association Library Section	Illinois, Indiana, Iowa, Minnesota, Wisconsin
Consortium of Western Universities and Colleges	Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming
Cooperative College Library Center (CCLC)	Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Texas, Virginia
Middle Atlantic Research Libraries Information Network (MARLIN)	Delaware, Maryland, New Jersey, Pennsylvania
New England Library Information Network (NELINET)	Connecticut, Maine, Massachusetts, Rhode Island, New Hampshire, Vermont
Ohio College Library Center (OCLC)	Ohio, Georgia, New England, New York, Pennsylvania, Texas, Federal libraries, NELINET, SOLINET
Pacific Northwest Bibliographic Center (PNBC)	Alaska, Idaho, Montana, Oregon, Washington, portions of British Columbia
Southeastern Library Network (SOLINET)	Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia

¹ Multi-state is defined as more than two states. Sources for the table were a general literature search and the Directory of Academic Consortia and its Supplement.

² In the various consortia, only some or occasionally all libraries in the listed state are participants. Also, memberships fluctuate with time so that this list will not remain static.

Figure A-2. Existing and planned Multi-State Library Consortia
(Continued)

<u>Consortia</u>	<u>States</u>
Southwestern Library Inter- state Cooperative Endeavor (SLICE)	Arizona, Arkansas, Louisiana, New Mexico, Oklahoma, Texas
Tri-State College Library Cooperative	Delaware, New Jersey, Pennsylvania
Upper Midwest Regional Library Network	Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, Wisconsin
Western Interstate Commis- sion for Higher Education	Alaska, Arizona, California, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

- c. Some degree of similarity and a potential for mutual support among areas identified.

These criteria, particularly the second, lead to a concept of a hierarchical structure of zones within regions, with the major resource functions performed within compact zones and coordinated at the regional level. Bibliographic functions would be performed at the regional level.

Based on the above, then, both regions and zones had to be determined. The process built upon itself; criteria for zones and other criteria for regions were balanced against each other until a solution was reached. It is evident that any number of different schemes could have resulted from this process, but two in particular have been selected as a basis for discussion; either would be highly feasible. The two are presented below along with a discussion of the variables considered in the selection process.

It should be noted at this point that all schemes considered were based on states as the basic unit, and that states within a region were required to be contiguous. Reasons for the latter requirement include the present importance of a compact delivery area, similarities of library characteristics within geographic areas, and the large number of existing cooperative ventures, both library and nonlibrary, based on geographic divisions.

Included in each of the two plans are the fifty states, the District of Columbia, Puerto Rico, the Virgin Islands, Canal Zone, the Pacific Islands, the Federal libraries outside the U.S. The last five were included as areas which should have at least some minimal access to the network. Also taken into consideration were British Columbia, which is presently involved in the Pacific Northwest Bibliographic Center, and other bordering Canadian provinces whose resources would play a role in any U.S. library system.

The two schemes selected are shown in Figures A-3 and A-4, and Tables A-1 and A-2 give for each map respectively the population, area, number of public and academic library volumes, and number of public and academic library volumes per capita in each zone and region. These figures were used to identify the various components of regional size and similarity required by our criteria. It should be noted that they are given for comparative purposes only, since they are derived from different sources for different time periods.

Map A

The scheme of Figure A-3 (Map A) is based primarily upon existing or planned multi-state library consortia. There are four regions -- Northeast, South, Midwest, and West -- with similarities of population and library characteristics within each region. Population of the regions varies from 35 million in the sparsely populated West to 70 million in the resource-rich Northwest. Each region is further divided into two or three zones, as outlined below.

Northeast Region (Map A)

Zone 1: Connecticut
 Maine
 Massachusetts
 New Hampshire
 Rhode Island
 Vermont

Zone 1 is New England, containing the well established New England Library Information Network (NELINET). The area is unique in the country, having some 76 million public and academic library volumes in a geographic area of 63 thousand square miles,

Figure A-3. Map A - A Scheme of Regions and Zones for the National Library Network



- Puerto Rico (5)
- Virgin Islands (5)
- Canal Zone (5)
- Pacific Islands (11)
- Federal Libraries - Atlantic region (3)
- Federal Libraries - Pacific region (11)

Table A-1. Characteristics¹ of regions and zones for Map A

Region or Zone	Population ² (000's)	Area (000's)	Library Volumes			Public and Academic Library Volumes/Capita
			Public Library ³ (000's)	Academic Library ⁴ (000's)	Total (000's)	
Northeast	66,841 ⁵	240	139,564	140,401	279,965	4.2
1	11,847	63	36,640	39,739	76,379	6.4
2	25,544	55	51,636	46,951	98,587	3.9
3	29,450	122	51,288	52,711	104,000	3.5
South	58,406	838	59,732	84,324	144,056	2.5
4	16,873	170	18,381	29,168	47,549	2.8
5	22,212	240	19,343	25,378	44,721	2.0
6	19,321	428	22,008	29,778	51,786	2.7
Midwest	45,933	713	80,945	84,945	165,908	3.6
7	27,544	375	42,123	53,846	95,969	3.5
8	18,390	338	38,822	31,118	69,940	3.8
West	35,099	1,748	45,875	61,298	107,173	3.1
9	7,234	957	13,377	12,742	26,119	3.6
10	6,358	518	10,263	12,884	23,148	3.6
11	21,507	273	22,235	35,671	57,906	2.7
Total	206,279	3,539	326,115	69,987	696,103	3.4

¹ Totals do not include any figures for Federal libraries outside the U.S. or for Canadian libraries.

² Source: 1970 census data.

³ Source: 1972-73 American Library Directory.

⁴ Source: National Center for Education Statistics, Library Statistics of Colleges and Universities, Fall 1971 Analytic Report (Part C).

⁵ Subtotal for the region.

and the highest volumes/capita figure of all the zones established (6.4).

Zone 2: New Jersey
 New York

New York has a highly developed resource system of its own, NYSILL, and has recently entered into some cooperative efforts with neighboring New Jersey.

Zone 3: Delaware
 District of Columbia
 Maryland
 Ohio
 Pennsylvania
 West Virginia
 Federal Libraries - Atlantic region

Two cooperative library ventures are in existence in the Middle Atlantic area -- the Middle Atlantic Research Libraries Information Network and the Tri-State College Library Cooperative. Both of these include New Jersey, which also has ties with New York and is included in zone 2. District of Columbia libraries are closely allied with those in the Maryland component of the capital area, and federal libraries in the Atlantic region are in turn associated with D.C. federal libraries. Ohio is included in the Northeastern region and zone 3 because of the close connections between the Ohio College Library Center and various libraries and library systems in the region.

Within the Northeastern region, the three zones are fairly evenly divided in terms of resources and zones 2 and 3 are especially similar in terms of both population and resource holdings. Each zone in the region should be able to make significant contributions to regional development.

Southern Region (Map A)

- Zone 4: Kentucky
North Carolina
Tennessee
Virginia
- Zone 5: Alabama
Florida
Georgia
Mississippi
South Carolina
Canal Zone
Puerto Rico
Virgin Islands
- Zone 6: Arkansas
Louisiana
Oklahoma
Texas

The primary basis for the Southern region is the Southeastern Library Network (SOLINET), which includes libraries in 10 of the 13 states in the region. Libraries in many of the states are also involved in the Cooperative College Library Center. The determination of zones within the region was based on an effort to divide population and resources equally among the three regions. Because the South is relatively low in resources per capita, zones were kept small to allow for extensive development.

Midwestern Region (Map A)

- Zone 7: Illinois
Indiana
Iowa
Kansas
Missouri
Nebraska
- Zone 8: Michigan
Minnesota
North Dakota
South Dakota
Wisconsin

A planned cooperative venture, the Upper Midwest Regional Library Network, would link libraries of 10 of the 11 states in the Midwest region into a bibliographic network. Also noted in this region is the Central States College Association Library Section and many examples of cooperation between two contiguous states which were not included in our multi-state (more than two) list. Again, the region was too large to serve as a single resource area, and a division was made on the basis of including states with both large and small absolute volumes of resources in each zone. Per capita volumes is also balanced between the two zones.

Western Region (Map A)

Zone 9: Alaska
Idaho
Montana
Oregon
Washington
(British Columbia)

Zone 9 is presently served by the Pacific Northwest Bibliographic Center, which includes individual libraries in British Columbia in its membership. Though the zone is small in population and resources, it is geographically large and isolated and it seems appropriate to rely upon the well established structure of the PNBC for further development.

Zone 10: California
Nevada
Hawaii
Federal libraries - Pacific region
Pacific Islands

California is unique among the Western states, but does engage in some cooperative activities with Nevada and Hawaii.

This zone also seems the appropriate place to include the Pacific Islands and the federal libraries in the Pacific region.

Zone 11: Arizona
Colorado
New Mexico
Utah
Wyoming

Zone 11 contains five of the 11 states served by the Rocky Mountain Bibliographic Center for Research -- the remaining six are included in zones 6, 7 and 8 because of conflicting regional activities. The evidence we considered does not weigh more strongly in either direction for those states, and the decision was made arbitrarily. Further information is needed.

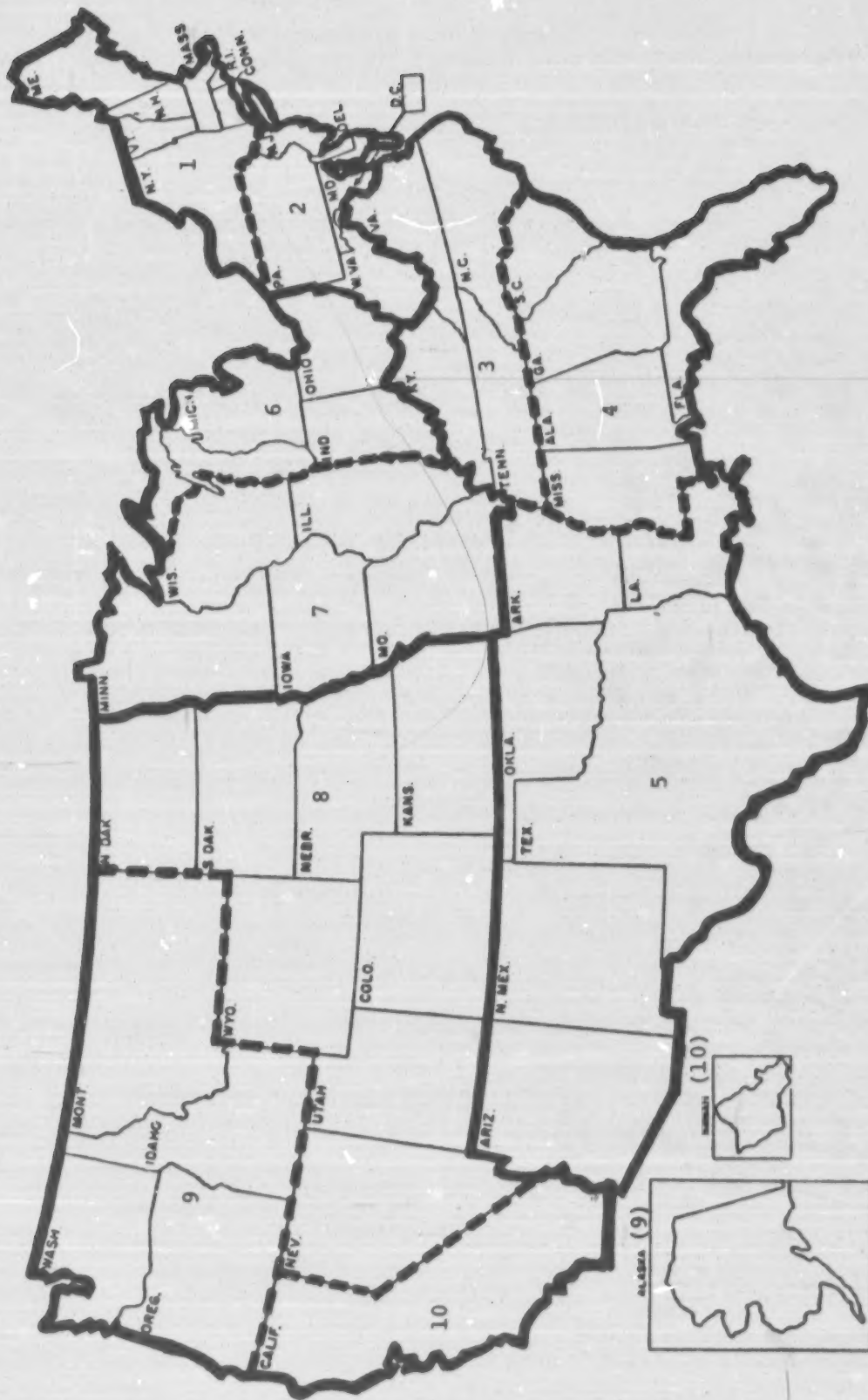
Zone 11 is similar in size (population and resources) to zone 9 of the Western region.

Overall, the Western region includes the same states as the Consortium of Western Universities and Colleges and the Western Interstate Commission on Higher Education, both of which sponsor cooperative library development. While it is not possible to construct similar zones within the region, the zones identified would each appear to offer some unique contribution to regional development.

Map B

Figure A-4 (Map B) presents a regionalization scheme based primarily on existing and planned library associations (chapters of the American Library Association). Four regions -- Northeast, South, Midwest, and West -- have again been identified, with somewhat different boundaries than for the preceding map.

Figure A-4. Map B - A Scheme of Regions and Zones for the National Library Network



Puerto Rico (4)
 Virgin Islands (4)
 Canal Zone (4)
 Pacific Islands (10)
 Federal Libraries - Atlantic region (2)
 Federal Libraries - Pacific region (10)

Table A-2. Characteristics of regions and zones for map 2

Region or Zone	Population ² (000's)	Area (000's)	Library Volumes			Public and Academic Library Volumes/Capita
			Public Library ³ (000's)	Academic Library ⁴ (000's)	Total (000's)	
Northeast	56,190 ⁵	199	113,659	123,413	237,072	4.2
1	30,089	111	72,363	78,237	150,600	5.0
2	26,101	88	41,296	45,176	86,472	3.3
South	61,194	1,073	63,255	88,819	150,274	2.5
3	16,873	170	18,381	29,168	47,549	2.8
4	22,212	240	19,343	25,378	44,721	2.0
5	22,109	663	25,531	34,273	59,803	2.7
Midwest	51,568	450	95,870	90,360	186,231	3.6
6	24,730	136	57,680	39,154	96,834	3.9
7	26,838	314	38,190	51,206	89,397	3.3
West	37,327	1,817	53,330	67,395	120,725	3.2
8	9,075	696	18,348	19,652	38,001	4.2
9	7,234	957	13,377	12,742	26,119	3.6
10	21,018	163	21,605	34,000	55,605	2.6
Total	206,279	3,539	326,115	369,987	696,103	3.4

¹ Totals do not include any figures for Federal libraries outside the U.S. or for Canadian libraries.

² Source: 1970 census data.

³ Source: 1972-73 American Library Directory.

⁴ Source: National Center for Education Statistics, Library Statistics of Colleges and Universities, Fall 1971 Analytic Report (Part C).

⁵ Subtotal for the region.

Populations of the regions vary from 37 million in the West to 59 million in the Northeast. Zones within the regions are outlined below.

Northeast Region (Map B)

Zone 1: Connecticut
 Maine
 Massachusetts
 New Hampshire
 New York
 Rhode Island
 Vermont

The zone is made up of the states included in the New England Library Association and the New York Library Association. New York has connections with neighboring states both to the east and south, and so was included with New England in this scheme to show an alternate option.

Zone 2: Delaware
 District of Columbia
 Maryland
 New Jersey
 Pennsylvania
 West Virginia
 Federal libraries - Atlantic region

The Mid-Atlantic Library Association is in the process of forming, and will include all the states in zone 2. Again D.C. and the federal libraries - Atlantic region have been added to the zone. Zones 1 and 2 divide the total population of the Northeast fairly evenly.

Southern Region (Map B)

Zone 3: Kentucky
 North Carolina
 Tennessee
 Virginia

Zone 4: Alabama
Florida
Georgia
Mississippi
South Carolina
Canal Zone
Puerto Rico
Virgin Islands

Zones 3 and 4 are identical to zones 4 and 5 of Map A. Together they contain the nine states included in the Southeastern Library Association.

Zone 5: Arizona
Arkansas
Louisiana
New Mexico
Oklahoma
Texas

Zone 5 covers the same area as the Southwestern Library Association, as well as including those States involved in the Southwestern Library Interstate Cooperative Endeavor (SLICE), which was divided between zones 6 and 10 in Map A. Zone 5 is similar in size (population and volumes) to the other zones of the Southern region, and the three zones have similar volumes per capita ratios.

Midwestern Region (Map B)

Zone 6: Illinois
Iowa
Minnesota
Missouri
Wisconsin

Zone 7: Indiana
Michigan
Ohio

The eight states of the Midwestern Region are included in the Midwest Library Association, now in the process of forming. The division of the region into zones was based on equalizing total resources and population, and provides a contrast to Map A's horizontal division of the region. Volumes per capita figures for the two zones are similar.

Western Region (Map B)

Zone 8: Colorado
Kansas
Nebraska
Nevada
North Dakota
South Dakota
Utah
Wyoming

Zone 8 contains the states of the Mountain Plains Library Association, and also eight of the nine states served by the Bibliographical Center for Research, Rocky Mountain Region.

Zone 9: Alaska
Idaho
Montana
Oregon
Washington
(British Columbia)

Zone 9 is identical to zone 9 of Map A, and includes the same states as the Pacific Northwest Library Association.

Zone 10: California
Hawaii
Federal libraries - Pacific region
Pacific Islands

California is, as indicated with Map A, unique among the Western states, and neither it nor Hawaii are included in any

multi-state library association. As in Map A, the three zones of the Western Region are necessarily dissimilar, but have characteristics which could be of mutual benefit. Zones 8 and 9 are fairly similar in population, resources, and volumes per capita.

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APPENDIX B

SURVEY OF PUBLIC AND SPECIAL LIBRARIES

APPENDIX B

SURVEY OF PUBLIC AND SPECIAL LIBRARIES

Previous studies by Westat established estimates of the characteristics and magnitude of interlibrary loan activity for academic libraries on the national level.^{1,2} Similar results for public and special libraries were not available. It was considered important that an improved estimate on the magnitude of interlibrary loan use for all types of libraries be established. In order to fill this gap, Westat designed and conducted a small mail survey of public and special libraries. The primary purpose was to solicit information on the amount of present use of interlibrary loan and a few gross indications of the perceived needs for an improved interlibrary loan system for public and special libraries.

A brief data collection form was designed (Exhibit 2) and copies were mailed to probability samples of 150 special libraries and 150 public libraries. The samples were designed to provide a representation of special and public libraries on a national basis. The more important results, sampling plan, and survey methodology are summarized in the following sections of this appendix.

¹Palmour, Vernon E., Bryant, Edward C., Caldwell, Nancy C., and Gray, Lucy M. A Study of the Characteristics, Costs, and Magnitude of Interlibrary Loans in Academic Libraries, Westport, Connecticut: Greenwood Publishing Company, 1972.

²Palmour, Vernon E., Bellassai, Marcia C., and Gray, Lucy M., Access to Periodical Resources: A National Plan, Washington, D.C.: Association of Research Libraries, February, 1974.

Survey Results

The analysis of the survey data was devoted to simple tabulations of responses in terms of the reporting library size as indicated by the number of volumes owned. Reported results from the sample libraries were weighted by assigning the appropriate adjusted sampling weight (reciprocal of the selection probability adjusted to account for nonresponse) in order to arrive at national estimates for the total population of public and special libraries.

All public libraries in the sample reported the use of interlibrary loans as a means of borrowing or lending library materials. About 83 percent of the responding special libraries indicated the use of interlibrary loan.

Of primary importance for this study was the level of interlibrary loans for public and special libraries. The reported numbers of interlibrary loan requests received and filled were weighted to arrive at the estimates of national totals as shown in Table B-1. The estimates in Table B-1 are in terms of the number of titles requested and filled. The magnitude of interlibrary loan for public libraries is not too different from the estimated number of ILL transactions by academic libraries, 1,850,000 for the same year.

The special libraries have a significantly higher success rate for filled requests both as lenders and borrowers. The reasons for this greater success with interlibrary loan (in contrast to other types of libraries) could include: better knowledge of locations for more specialized materials, established arrangements with other libraries for service (for a fee in many cases), and greater use of existing abstracting and indexing

Table B-1. Estimated magnitude of annual interlibrary loan activity for public and special libraries, 1972

Activity	Public Libraries	Special Libraries
<u>Lending</u>		
Total	2,235,000	387,000
Filled	1,165,000	314,000
Percent Filled	52%	81%
<u>Borrowing</u>		
Total	1,068,000	353,000
Filled	760,000	327,000
Percent Filled	71%	93%

tools and services that result in better identification of citations.

Eighty-seven percent of the public libraries reported membership in networks or consortia for the purpose of interlibrary borrowing and lending. Such a high percentage reflects the emergence of public library systems within states. Only about 18 percent of all special libraries are members in networks or consortia for interlibrary sharing.

When asked -- "Do you feel that the interlibrary loan requirements of your patrons are adequately met?" -- about 64 percent of all public libraries and about 72 percent of all special libraries answered "yes." It was the large public libraries who expressed the greatest concern for the adequacy of interlibrary loan service, Table B-2. This is true in the case of academic libraries also with the large libraries showing the greatest concern with the current service.

Table B-2. Percentage distribution for adequacy of ILL (in meeting patrons needs) by type library and collection size

Type of Library and Collection Size	Adequacy of ILL			Total Percent	Total Libraries
	ILL Requirements of Patrons Are Met	ILL Requirements of Patrons Are <u>Not</u> Met	DK/NA		
<u>Public Libraries</u>					
Less than 100,000 volumes	66	2	7	100	444
100,000 - 499,999 volumes	66	27	7	100	511
500,000 volumes or more	46	53	1	100	101
All public libraries	64	29	6	100	1,055
<u>Special Libraries</u>					
Less than 10,000 volumes	84	16	0	100	2,018
10,000 - 49,999 volumes	56	26	18	100	740
50,000 volumes or more	75	5	20	100	194
All special libraries	72	19	9	100	2,952

Libraries were asked to indicate their three most pressing interlibrary loan problems as a lender and as a borrower. Tables B-3 and B-4 give the results. Both tables include multiple responses, consequently the horizontal percentages exceed 100 percent in the aggregate. As lenders the most pressing interlibrary loan problem for both public and special libraries was the unavailability of the materials requested by other libraries, Table B-3. Fifty-three percent of the large public libraries indicated verification of citations as a major problem. Cost of providing interlibrary loan service was the second most pressing lending problem for all public libraries.

Again, as borrowers the libraries -- both public and special -- indicated that the unavailability of requested materials was the most pressing problem, Table B-4. Special libraries also noted the lack of information on the location of required materials was a concern. Verification of citations was a borrowing problem for public libraries.

Tables B-3 and B-4 confirm the lack of good bibliographic tools available for verification and location of materials for interlibrary loans. The patterns appear similar to those for academic institutions engaged in interlibrary lending and borrowing -- a high percentage of requested materials are not available because they are not owned, in use, noncirculating, or unavailable for other reasons.

The last part of the questionnaire, Exhibit 2, solicited opinions from librarians on the kinds of materials and services a regional or national resource network should provide. Little used newspapers and heavily used monographs in the English language drew the greatest attention of the public libraries in terms of the kinds of materials most needed as interlibrary loan

Table B-3. Percentage distribution of most pressing ILL lending problems by type of lending library and collection size

Type of Lending Library and Collection Size	Most Pressing ILL Lending Problems								Total Librarians
	Communi- cations	Verification of Citations	Location of Materials	Materials Available ¹ Not	Current ILL Restrictions	Delay in Receiving Materials ²	Loss of In-House Use of Material	Cost (Staff Prob- lems Time)	
<u>Public Libraries</u>									
Less than 100,000 volumes	7	0	20	27	7	20	13	27	444
100,000 - 499,999 volumes	29	27	14	52	2	12	10	23	511
500,000 volumes or more	15	53	16	77	3	24	7	49	101
All public libraries	18	18	17	44	4	16	11	27	1,055
<u>Special Libraries</u>									
Less than 10,000 volumes	13	3	3	16	16	3	0	14	2,018
10,000 - 49,999 volumes	4	11	22	55	4	18	26	19	740
50,000 volumes or more	1	25	12	32	4	8	13	19	194
All special libraries	9	8	11	33	10	9	11	16	2,952

¹ Requested materials not available (not held, in use, noncirculating, etc.).

² Postal or delivery system delays.

Table B-4. Percentage Distribution of most pressing ILL borrowing problems by type of borrowing library and collection size

Type of Borrowing Library and Collection Size	Most Pressing ILL Borrowing Problems									Total Libraries
	Communi- cations	Verification of Citations	Location of Materials	Materials Not Available ¹	Current ILL Restrictions	Delay in Receiving Materials ²	Loss of In-House Use of Material	Cost (Staff Time)	Other Prob- lems	
<u>Public Libraries</u>										
Less than 100,000 volumes	20	33	27	67	7	20	0	20	0	444
100,000 - 499,999 volumes	22	31	26	65	16	31	6	10	13	511
500,000 volumes or more	18	31	44	66	31	43	1	25	9	101
All public libraries	21	32	28	66	14	28	3	16	7	1,055
<u>Special Libraries</u>										
Less than 10,000 volumes	13	0	57	84	16	54	0	0	0	2,018
10,000 - 49,999 volumes	4	22	56	48	4	37	0	4	4	740
50,000 volumes or more	1	33	33	59	8	16	0	12	0	194
All special libraries	2	12	54	68	11	44	0	3	1	2,952

¹ Requested materials not available (not held, in use, noncirculating, etc.).

: Postal or delivery system delays.

resources, Table B-5. Special libraries stressed the need for heavily used periodicals in the English language.

Table B-5. Percentage distribution of materials most needed as ILL resources by type of library

Type of Library and Type of Material	Language and Usage of Material			
	English Language		Foreign Language	
	Heavily Used	Little Used	Heavily Used	Little Used
<u>Public Libraries</u>				
Current monographs	37	27	1	39
Retrospective monographs	45	18	1	41
Current periodicals	12	43	1	34
Retrospective periodicals	34	37	0	36
Newspapers	2	47	0	35
Reports	6	46	0	34
Other materials	17	12	3	17
<u>Special Libraries</u>				
Current monographs	18	14	2	21
Retrospective monographs	30	18	4	24
Current periodicals	47	15	4	20
Retrospective periodicals	46	12	8	17
Newspapers	11	14	1	18
Reports	22	7	2	16
Other materials	10	2	0	7

NOTE: Multiple responses are included in this table.

Respondents were also asked to designate the services that should be provided by a regional or national library resources network. Their responses (Table B-6) appear consistent with the problems expressed earlier in Table B-4 -- materials location service was the most cited service required which addresses the most pressing problem of unavailable materials. A rather high percentage of all public libraries indicated a

Table B-6. Percentage distribution of services that a regional or national library resources network should provide by type of library and collection size

Type of Library and Collection Size	Services of a Regional or National Network								
	Biblio. Verif.	Reference Service	Materials Location Service	Technical Services	Communi- cation Network	Guaranteed Access to Commonly Used Material	Dependable Access to Little Used Material	Access to All Materials	Other Services
<u>Public Libraries</u>									
Less than 100,000 volumes	33	60	67	7	53	60	47	40	7
100,000 - 499,999 volumes	51	70	82	15	79	47	69	60	3
500,000 volumes or more	73	66	94	18	78	54	79	48	8
All public libraries	46	66	77	12	68	53	60	51	5
<u>Special Libraries</u>									
Less than 10,000 volumes	46	32	41	30	43	40	54	30	0
10,000 - 49,999 volumes	41	22	74	0	15	37	56	29	0
50,000 volumes or more	56	18	68	8	18	20	44	6	3
All special libraries	45	27	56	16	30	37	54	27	0

broad spectrum of needs with over 50 percent of all librarians stressing the need for reference service, materials location service, communications network, guaranteed access to all commonly used materials, dependable access to little used material, and access to all library materials. Over 50 percent of the special librarians cited the need for materials location service and dependable access to little used materials.

The overall impression conveyed by this brief survey of public and special libraries is that the special libraries do quite well with regard to meeting their present interlibrary loan needs, whereas the public librarians are not as satisfied with the current interlibrary loan system. Like the academic librarians, the public librarians do not feel the system is dependable. The problem of not knowing which library to request materials from is a universal problem in the present interlibrary loan system. A second pressing problem is that just knowing the location of materials does not insure their availability for loan.

Public Library Sample

The sampling frame or universe of public libraries consisted of those libraries reported by the Office of Education in their 1968 survey.³ Stratifying the universe into three size classes, based on the number of volumes owned, resulted in a sampling frame as follows:

³ U.S. Office of Education, Statistics of Public Libraries Serving Areas With At Least 25,000 Inhabitants, 1968, Washington, D.C.: National Center for Educational Statistics, May 1970.

<u>Stratum</u>	<u>Volumes Owned</u>	<u>Number of Libraries</u>
1	Less than 100,000	621
2	100,000 - 499,999	376
3	500,000 +	76
Total		<u>1,055</u>

A probability sample of 150 public libraries was drawn from the above universe. The largest 58 libraries were included in the sample with certainty. Allocating the remaining 92 sample libraries over the three strata on the basis of aggregate collection sizes resulted in the following sample:

<u>Stratum</u>	<u>Sample Size</u>
1	30
2	58
3	62

Within each stratum, the sample libraries were selected with equal probability. For example, in Stratum 1, each of the 30 sample libraries was drawn with probability 30/621. This probability is based on the fact that Stratum 1 included 621 libraries in the sampling frame.

The number of respondents and the response rate for each stratum was as follows:

<u>Stratum</u>	<u>Number Responding</u>	<u>Response Rate (%)</u>
1	21	70
2	42	72
3	47	76
Total	<u>110</u>	<u>73</u>

The responding libraries were reclassified into the three size strata based on their reported collection sizes in 1973. Since 1968 their collections had grown and the expected

upward shift resulted in the following estimated distributions of the total universe:

<u>Stratum</u>	<u>Estimated Distribution</u>
1	444
2	511
3	101
Total	<u>1,055</u>

Special Library Sample

In the case of special libraries it was more difficult to develop a suitable sampling frame. After consideration of available sources, the special libraries listed in R. R. Bowker's American Library Directory, 1972-73 (28th - Edition) was adopted as the universe for this sample. It must be noted, however, that special libraries which are also considered federal, military, academic, or libraries for the blind were excluded from the universe.

Without a listing of the individual libraries by size, procedures had to be developed that would permit sampling from the directory. Care was taken to insure that the sample included the very large special libraries. All special libraries with collection sizes of 50,000 volumes and greater (excluding federal, military, academic, and libraries for the blind) were recorded on index cards. These libraries composed the uppermost stratum of the sampling frame.

The remainder of the sampling frame consisted of special libraries with collections less than 50,000 volumes. Every fifth page of the Bowker Directory was sampled and the names and collection sizes of qualifying special libraries were recorded on

index cards. These libraries were then divided into two strata -- (1) libraries with collections of 10,000 - 49,999 volumes, and (2) libraries with collections of less than 10,000 volumes. The recorded libraries in each stratum were ranked according to collection size. The number of libraries in the sampling frame and the estimated number of libraries in the universe were as follows:

<u>Stratum</u>	<u>Volumes Owned</u>	<u>Sampling Frame</u>	<u>Estimated Universe</u>
1	Less than 10,000	434	2,170
2	10,000 - 49,999	137	685
3	50,000 +	173	173
Total		744	3,028

The number of libraries shown in the estimated universe for the two smaller strata is simply five times the number of libraries in the sampling frame due to the sampling of every fifth page of the directory.

The following sample sizes for each strata were chosen to provide a total sample of 150 special libraries:

<u>Stratum</u>	<u>Sample Size</u>
1	20
2	40
3	90

It was further decided to include the 50 largest libraries in the sample with certainty. From the remaining 123 libraries in the Stratum 3 sampling frame, 40 libraries were drawn systematically. Again using the index cards arranged in rank order by collection size, a sample of 40 libraries was selected systematically from the sampling frame for Stratum 2. A sample of 20 special libraries was drawn from Stratum 1.

Within each stratum, the sample libraries were selected with equal probability. For example, in Stratum 1, each of the 20 sample libraries was drawn with probability 20/434 (since Stratum 1 included 434 libraries in the sampling frame). One exception exists, however, for Stratum 3 in which the 50 largest libraries were selected with certainty. The probability of selection for the 50 "certainty" libraries is 1.0. Each of the remaining 40 sample libraries in Stratum 3 was selected with (equal) probability 40/123; after including the 50 largest libraries with certainty, 123 libraries remained in the sampling frame for Stratum 3.

The number of respondents and response rate for each stratum of special libraries were as follows:

<u>Stratum</u>	<u>Number Responding</u>	<u>Response Rate (%)</u>
1	8	40
2	25	62
3	59	66
Total		<u>61</u>

As in the case for public libraries, the responding special libraries were reclassified into the three size strata based on actual reported collection sizes for 1973. The resulting estimated distribution of the total universe of special libraries was as follows:

<u>Stratum</u>	<u>Estimated Distribution</u>
1	2,018
2	740
3	194
Total	<u>2,952</u>

Survey Methodology

A brief data collection instrument was developed by Westat and reviewed by the Advisory Committee. Most questions were similar to ones used by Westat in other library surveys and were known to function properly; consequently, the form was not pretested with libraries.

The questionnaires were mailed to 150 public libraries and 150 special libraries in November 1973. The cover letter and form are attached as Exhibits 1 and 2. The cover letter shown was for the public librarians; a similar letter accompanied the forms to the sample of special libraries.

About three weeks after the initial mailing, followup letters were mailed to all nonrespondents. In another three weeks, the remaining nonrespondents were contacted by telephone and encouraged to complete and return their forms. If the survey package had been lost in the mail or misplaced, Westat then provided additional copies to be completed as soon as possible. These followup activities aided in increasing the overall response rate for the survey.

Data Preparation and Tabulation

Completed questionnaires were returned to Westat by mail from the participating libraries. Each form was logged in and assigned a unique identification number. The overall response rate was 73 percent for the public libraries and 61 percent for the special libraries. These response rates represent the proportion of sample libraries from which usable returns were received prior to a cutoff date. The additional responses received were from libraries for which many of the questions were

not applicable, and therefore the data were too sketchy for analysis or received after the cutoff date for analysis purposes.

After completion of the coding activities, the questionnaire responses were keypunched directly from the coded survey forms. The data cards were then edited manually (and corrected when necessary) in preparation for computer processing. In the machine processing, data cards were read directly by the computer. Marginal tabulations were produced for analysis.

NATIONAL COMMISSION ON LIBRARIES AND INFORMATION SCIENCE

SUITE 601 • 1717 K STREET, N.W. • WASHINGTON, D.C. 20036 • TELEPHONE (202) 382-6595

FREDERICK H. BURKHARDT
ChairmanCHARLES H. STEVENS
Executive Director

November, 1973

Dear Respondent:

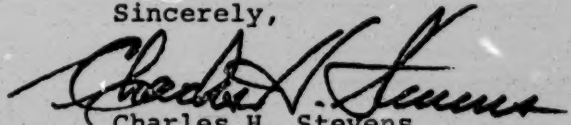
The National Commission on Libraries and Information Science is currently sponsoring a study entitled "The Role of Regional Resource Centers and Bibliographic Centers in a National Network of Information Services." NCLIS has contracted with Westat, Inc. of Rockville, Maryland to design a national configuration of resource centers and bibliographic centers through which access to all commonly used library materials would be guaranteed.

This mail survey of directors of public libraries is being conducted to gain a better understanding of existing library networks and cooperative agreements. Development of a national network that is responsive to needs and also compatible with existing resources and networks requires a comprehensive knowledge of resources, networks, needs, and problems in libraries throughout the country. Unfortunately, portions of this data are not presently available. The enclosed questionnaire is designed to elicit the desired information with regard to current resources and unmet needs as well as patterns and problems of existing networks.

Please complete the questionnaire at your earliest convenience and return it in the enclosed pre-addressed envelope. You may contact Lucy Gray of Westat at (301) 881-5310 (call collect) if you have any questions.

Your cooperation in this important project will be greatly appreciated.

Sincerely,


Charles H. Stevens
Executive Director

Enclosure

RESOURCE AND BIBLIOGRAPHIC CENTER STUDY

Name of Organization: _____

Name and Address of
Library: _____

Person Completing
Questionnaire: _____

Title: _____

Telephone No.: _____

Upon completion of this questionnaire, please return it to:

Westat, Inc.
11600 Nebel Street
Rockville, Maryland 20852

If you have any questions, please contact Lucy Gray at
(301) 881-5310 (call collect).

INSTRUCTIONS

- Several types of questions are included in this questionnaire. Some questions call for "fill-in-the-blank" answers, and in others you are asked to circle the number(s) next to the answer(s) you select. The remaining questions request discussion-type answers.
- Your responses will be summarized with those of other librarians and will serve as guidelines in designing bibliographic center and resource center configurations for interlibrary loan.

A. Interlibrary Loan Activities

1. Do you use interlibrary loan as a means of borrowing or lending library materials?

Yes 1
No (*Skip to Q.?*) 2

- 2a. Please summarize your interlibrary lending and borrowing activities for the year 1972 in the chart below. If you do not record detailed statistics, provide whatever information is available.

<u>Activity</u>	<u>Total number of requests</u>	<u>Number filled</u>	<u>Number not filled</u>
LENDING			
Total (all materials)	_____	_____	_____
Periodicals	_____	_____	_____
Photocopies	_____	_____	_____
BORROWING			
Total (all materials)	_____	_____	_____
Periodicals	_____	_____	_____
Photocopies	_____	_____	_____

- 2b. Do the figures reported above represent:

Volumes 1
Titles 2

3. What is the total number of volumes held by your library?

_____ (volumes)

4. Are there any libraries to which you do not provide interlibrary loan service (as a standard policy)?

(Circle all that apply)

None 1
Academic 2
Public 3
Government 4
Special 5
Other (*Specify*) 6

5. What proportion of your total ILL lending activity is created by each of the following types of libraries?

	Percent of total ILL lending
Academic	_____ %
Public	_____ %
Government	_____ %
Special	_____ %
Other (<i>Specify</i>) _____	_____ %
	<u>100%</u>

- 6a. Do you belong to any library network or consortium for the purpose of interlibrary borrowing and lending?

Yes 1
No (*Skip to Q.7*) 2

- 6b. If yes, what is the name of the network(s)?
-

B. Library Needs

7. Do you feel that the interlibrary loan requirements of your patrons are adequately met?

Yes 1
No 2

8. What are your three most pressing interlibrary loan problems -- as a lender? -- as a borrower? (*Circle no more than three responses in each column.*)

	<u>Lending</u>	<u>Borrowing</u>
Communications	1	1
Verification of citations	2	2
Location of materials	3	3
Requested material not available (not held, in use, non-circulating, etc.)	4	4
Current ILL restrictions	5	5
Delay in receiving materials (postal or delivery system)	6	6
Loss of in-house use of materials loaned	7	7
Cost of providing ILL service (staff time)	8	8
Other (<i>Specify</i>) _____	9	9

9. Which materials are most needed by your library as resources available through interlibrary loan?

(Circle all that apply)

	<u>English Language</u>		<u>Foreign Language</u>	
	<u>Heavily Used</u>	<u>Little Used</u>	<u>Heavily Used</u>	<u>Little Used</u>
Monographs				
Current (last 12 months)	1	2	3	4
Retrospective	1	2	3	4
Periodicals				
Current (last 12 months)	1	2	3	4
Retrospective	1	2	3	4
Newspapers	1	2	3	4
Reports	1	2	3	4
Other (Specify)	1	2	3	4

10. Which of the following services do you feel should be provided by a regional or national library resources network?

(Circle all that apply)

Bibliographic verification	1
Reference service	2
Materials location service	3
Technical services	4
Communications network	5
Guaranteed access to all commonly used materials	6
Dependable access to little used materials	7
Access to all library materials (including non-print, children's, etc.)	8
Other (Specify)	9

Comments and Suggestions

11. Please use the space below to comment on any of the topics covered in this questionnaire -- particularly on interlibrary loan and on cooperative use and processing of library materials. Discussion of specific problems and suggestions for improvement in these areas will be welcomed.

THANK YOU FOR YOUR COOPERATION

BEST COPY AVAILABLE

APPENDIX C

**INVENTORY OF STATE AND REGIONAL
COOPERATIVE ACTIVITY**

APPENDIX C

INVENTORY OF STATE AND REGIONAL COOPERATIVE ACTIVITY

The specification of a National Library Network must take into account the wide variety of library networking activities which have preceded it; activities which serve both as network nodes and as the foundation of or models for development. While a few current networking projects are widely discussed, for the most part the published literature is not a rich source for discovery of information on resource sharing. To compile this information, State Libraries or Library Agencies in each of the States were surveyed, with supplementary information obtained from the literature and from personal interviews with knowledgeable individuals.

C.1 Survey Design

In order to gain a better understanding of existing library networks and cooperative arrangements, Westat designed and conducted a mail survey of the State Libraries and Library Agencies. The questionnaire solicited information on both current resources and unmet needs as well as on patterns and problems of existing networks.

The questionnaire (Exhibit 4) was developed by Westat and reviewed by the Advisory Committee. Pretesting was conducted in two states and the questionnaire modified appropriately; it was then sent to the State Library or State Library Agency of each of the 50 states plus the District of Columbia. The cover letter which accompanied the questionnaire is shown in Exhibit 3.

Two waves of followup were used to increase the response rate; in all, 46 of the State Libraries and Library Agencies returned a completed questionnaire. The questionnaires, after log-in, were manually edited and responses were compiled to obtain the summaries presented below. Areas covered by the questionnaire included state networks or cooperatives, regional networks, union lists and library needs.

Of the 46 States responding, all indicated that there was at least one library system, network or cooperative in operation or planned within their states (Table C-1). The maximum number of State networks in a single state was 21 in California. A total of 164 networks (Table C-2) were reported, for an average of 3.6 per state.

Table C-1. Distribution of states by number of operational or planned networks.

Number of Networks	Number of States	Percentage of States
0	-	-
1	16	35
2	9	20
3	10	22
greater than 3	11	24
TOTAL	46	100

Table C-2. Characteristics of state systems and networks

	Number of Networks	Percent of Networks
Operational	153	93
Planned	11	7
TOTAL	164	100

Functions Performed	Number of Networks ¹	Percent of Networks
Interlibrary loan	118	85
Communications	108	77
Verification of citations	88	63
Location of materials	107	76
Cooperative collection building	52	37
Joint acquisitions	37	27
Joint cataloging	29	21
Joint materials processing	26	19
Other	28	20

¹ N = 139

Table C-2. Characteristics of state systems and networks
(continued)

Types of Libraries Served	Number of Networks ¹	Percent of Networks
Public	126	91
Small academic	101	73
Large academic	90	65
Business and industrial	61	44
Other special	66	47
Other	54	39

¹ N = 139

The networks were described by the state library agencies as performing a variety of functions, with more than 75 percent providing as services interlibrary loan, communications, and materials location. Only about 20 percent of the networks took part in joint cataloging or joint materials processing. Among those functions listed as "other" were reference, delivery services, and information retrieval.

Type of library served is also shown in Table C-2. Most networks served more than one type of library, with public and academic libraries most frequently served. Networks including only one type of library were generally public library networks. It should be noted that the surveyed state libraries and library agencies are frequently responsible only for public library development and so might well be less aware of non-public library cooperative activities.

Figure C-1 lists, for each responding state, the systems and networks within the state. The titles themselves, combined with the above general information, give some indication of the volume and variety of state library activities throughout the country.

State agencies surveyed were also asked to list cooperative library arrangements which involve libraries from more than one state. Because these are generally the better known networks, we were able to supplement the responses received with additional information to arrive at a more comprehensive list of multi-state networks and their functions.

Combined results from the returned state agency questionnaire and other sources show (Table C-3) that there are four states

Table C-3. Distribution of states by participation in regional (multi-state) networks

Number of Regional Networks	Number of States	Percent of States
0	4	8
1	15	29
2	18	35
3	12	24
greater than 3	2	4
TOTAL	51	100

Figure C-1. Inventory of State Systems and Networks

<u>State</u>	<u>Intra-State Systems and Networks</u>
Alabama	State-wide library network (ACHDE)
Alaska	State-wide library network
Arizona	Channeled Arizona Information Network
Arkansas	Arkansas Library Commission Central Arkansas Network
California	21 Public Library Systems; Intertype Library Reference Networks
Colorado	Colorado State-wide Reference Network
Connecticut	Library Group of Southwestern Connecticut Capital Region Library Council Southwestern Connecticut Library System Southern Connecticut Library Council Interloan Teletype Network
Delaware	Interlibrary Loan Network
Florida	Public Library Network; State University plus one; Bureau of Book Processing
Georgia	Georgia Library Information Network South Georgia Associated Libraries Central Georgia Associated Libraries
Hawaii	Hawaii State Library System Health Information Network of the Pacific University of Hawaii Campuses
Idaho	LITTY
Indiana	Indiana Teletype Network Indiana Information Retrieval System Cooperative Bibliographic Center for Indiana Libraries
Iowa	Iowa Library Information Teletype Exchange
Kansas	Kansas Information Circuit; ACK Hot line

Figure C-1. Inventory of State Systems and Networks (continued)

<u>State</u>	<u>Intra-State Systems and Networks</u>
Kentucky	KENCLIP - I, II, III, IV, V, VI
Louisiana	Louisiana Library Network, Trail Blazer System Green Gold System
Maine	TWX - WATS; Telecon
Maryland	State Library Network Eastern Shore Regional Library Resource Center Eastern Shore Materials Processing Center Western Maryland Regional Library Resource Center Southern Maryland Regional Library Resource Center Maryland Academic Library Center for Automated Processing
Massachusetts	Regional Public Library Systems Worcester Area Cooperating Libraries Southeastern Massachusetts Cooperating Libraries Hampshire Inter-Library Center
Minnesota	MINITEX CLIC 11 Regional Libraries
Montana	State Library Network; Medical Network South Central Federal Processing Center
Nebraska	Central Mari Sandoz Metropolitan Northern Panhandle Southeastern Intra-State Regional Systems
New Hampshire	Statewide Library Development Program
New Mexico	NEMISYS
New York	NYSILL; 9 Regional ILL Networks, Biomedical Communications Interactive Authority File and Catalog System (NYPL) Library for the Blind, FAUL Regional Medical Library Network Program

Figure C-1. Inventory of State Systems and Networks (continued)

<u>State</u>	<u>Intra-State Systems and Networks</u>
Nevada	Information Nevada Nevada Center for Cooperative Library Services Clark County ILL Network
North Carolina	North Carolina Interlibrary Services Network
North Dakota	North Dakota for Knowledge
Ohio	ARLO CAIN COIN MILO, SWORL, NOLA, WELD TWXIL
Oklahoma	OTIS MARC - Oklahoma
Oregon	Southern Oregon Library Federation
Pennsylvania	Regional Resource Centers Union Library Catalogue Five Regional Cooperatives Area College Library Cooperative
Rhode Island	Statewide Library Network 5 Interrelated Library Systems Rhode Island Library Film Cooperative Statewide Processing Center CRIARL (Consortium of Rhode Island Academic and Research Libraries)
South Carolina	South Carolina Information Network Charleston Consortia
South Dakota	Union Catalog
Tennessee	TWX; In-WATS
Texas	Texas State Library Communication Network
Vermont	Vermont Library Network
Virginia	Virginia Interlibrary Communication TWX Network

Figure C-1. Inventory of State Systems and Networks (continued)

<u>State</u>	<u>Intra-State Systems and Networks</u>
Washington	State-Controlled Area Network Washington Library Network
West Virginia	West Virginia Interlibrary Loan Network
Wisconsin	WILS Northeastern Wisconsin Intertype Libraries Wisconsin Health Science Network
Wyoming	Intra-County System Inter-County System Intra-State System

which do not participate in any regional networks and two (Vermont, Minnesota) which participate in more than three such networks. A total of 23 regional networks were identified, with members in from two to 11 states. Figure C-2 lists the 23 networks along with the states represented, the libraries included, the functions performed, and the method of compensation provided to network service nodes. As with intra-state networks, public and academic libraries are most frequently included and the most often performed functions are location of materials, interlibrary loan, and verification of citations. Several of the networks dealt with specialized materials, e.g., films, serials, braille materials.

The third area in which the state agencies were surveyed is union lists. Responses to the questions asking for the most comprehensive lists in the state are summarized in Table C-4, showing the distribution of union lists, and Figure C-3, listing and describing the various union catalogs and union lists by state. In total 113 union lists were identified, about equally divided between intra-state and statewide and between union catalogs and union lists of serials. Regional union catalogs identified include those of the Denver Bibliographical Center, the Pacific Northwest Bibliographic Center, and the Ohio College Library Center.

Tables C-5 through C-8 summarize the library agencies' perceptions of the needs of libraries within their states. Cited most frequently as pressing ILL problems were non-availability of requested material, delays in receiving materials, and staff time spent on ILL service. Loss of in-house use of material owned was

Figure C-2. Regional (Multi-State) Cooperatives

<u>Name of Interstate Cooperative</u>	<u>States Included</u>	<u>Functions</u>	<u>Types of Libraries Included</u>	<u>Method of Compensation</u>
NELINET (New England Library Network)	Maine New Hampshire Vermont Massachusetts Connecticut Rhode Island	Location of materials Joint cataloging	Academic Public	None
SOLINET (in process)	Alabama Florida Georgia Kentucky Virginia Mississippi North Carolina South Carolina Tennessee Louisiana	Location of materials Joint acquisitions Joint processing Joint cataloging ILL Communications Verification of citations	Academic Public Special State	Library member- ship fee Transaction fee
SLICE (Southwest Library Interstate Coopera- tive Endeavor)	Arkansas Louisiana Oklahoma Texas Arizona New Mexico	Communications Bibliographic Continuing education for librarians	Academic Public Special State	Library member- ship fee
Bibliographic Center Center for Research, Rocky Mountain Region	Colorado South Dakota Wyoming Arizona Iowa Kansas Nebraska New Mexico North Dakota Oklahoma Utah	Communications Verification of citations Location of materials	All	Library member- ship fee Transaction fee
(Denver Bibliographic Center)				

Figure C-2. Regional (Multi-State) Cooperatives (Continued)

<u>Name of Interstate Cooperative</u>	<u>Included</u>	<u>Functions</u>	<u>Types of Libraries Included</u>	<u>Method of Compensation</u>
Upper Midwest Regional Library Network (planned)	North Dakota South Dakota Nebraska Missouri Iowa Minnesota Wisconsin Illinois Indiana Michigan	?	All	?
PNBC (Pacific NW Biblio- graphic Center)	Montana Idaho Oregon Washington Alaska Br. Columbia	ILL Communications Verification of citations Location of materials Cooperative collection building	All	State membership fee
OCLC (Ohio College Library Center)	Ohio Pennsylvania Georgia New York Texas NELINET	Joint cataloging Location of materials	Not province- wide	Contract fee
New Hampshire Central- ized Card Service	Maine Vermont New Hampshire	Joint cataloging	Academic Public State	Library member- ship fee Monthly charges
Library for the Blind	Vermont New York	ILL	Public Special State	Contract fee Transaction
			Academic Public Medical Research Users	None

Figure C-2. Regional (Multi-State) Cooperatives (Continued)

<u>Name of Interstate Cooperative</u>	<u>States Included</u>	<u>Functions</u>	<u>Types of Libraries Included</u>	<u>Method of Compensation</u>
North Country Libraries Film Cooperative	Maine New Hampshire Vermont	ILL (films) Communications Verification of citations Location of materials Coop. collection bldg. Joint acquisitions Joint processing Joint cataloging	All	None
New York-New Jersey ILL (pending)	New York New Jersey	ILL	All	?
Southern Colleges and Universities Union	Tennessee Kentucky Alabama Mississippi Arkansas Louisiana	ILL Verification of citations Location of materials Reference	Academic	Membership fee Photocopy fee
Braille Service	North Carolina South Carolina	ILL (Braille) Communications Verification Location of materials Coop. collection bldg. Joint acquisitions Joint processing Joint cataloging	Academic Public Special	None
Pittsburgh Regional Library Center	Pennsylvania Ohio West Virginia	ILL Communications	Academic 1 Public	Contract fee Charges

Figure C-2. Regional (Multi-State) Cooperatives (Continued)

<u>Name of Interstate Cooperative</u>	<u>States Included</u>	<u>Functions</u>	<u>Types of Libraries Included</u>	<u>Method of Compensation</u>
Associated Colleges of the Midwest (ACM)	Illinois Iowa Wisconsin Minnesota Colorado	ILL (Serials) Communications Location of materials Cooperative collection building	Academic	Membership fee Photocopy fee
MINITEX-WILS	Minnesota Wisconsin	ILL Communications Verification of citations Location of materials	All	None
Kansas City Regional Council	Missouri Kansas	ILL Communications Location of materials Coop. collection bldg.	Academic Public Special	None
St. Louis Higher Education Coordi- nating Council	Illinois Missouri	ILL Communications Verification Location of materials Coop. collection bldg. Joint cataloging	Academic Public Special	None
Tri-University Library Project	Minnesota North Dakota	ILL Communications Verification Location of materials	Academic Public	None

Figure C-2. Regional (Multi-State) Cooperatives (Continued)

<u>Name of Interstate Cooperative</u>	<u>States Included</u>	<u>Functions</u>	<u>Types of Libraries Included</u>	<u>Method of Compensation</u>
Sierra Library System	California Arizona	ILL Communications Location of materials Bookmobile Service to unserved areas	Academic Public Special	None
Washoe County-Lassen County	Nevada California	ILL Communications Verification Location of materials Coop. collection bldg. Reference	Public	Library contact fee
Resources Delivery	Washington Alaska	Location of materials Joint cataloging Joint processing	All	Contact fee
Alaska Documents	Alaska Canada	ILL Coop. collection bldg.	Academic Public Government	None

Figure C-3. Statewide Union Catalogs (UC)
and/or Union Lists of Serials
(ULS)

State	UC	Date	No. of Titles	Form of Catalog	Types of Libr. Included	UIS	Date	No. of Titles	Form of List	Types of Libr. Included	Regional Union Catalog
Alaska	X	1935-		Card	Academic Public Special						RELINACT-
New Hampshire	X	1940-	900,000	Card	All						OCIC
Vermont	X	1971-	85,000	Card	Academic Public Special						OCIC
Massachusetts	X	1971-	85,000	Card	Academic Public Special						OCIC
Connecticut	X	1971-	85,000	Card	Academic Public Special						OCIC
Rhode Island											
New York											
New Jersey	X	1970		Micro-film card	Public						
Pennsylvania	X ¹	1933-	4,000,000	Card	Academic Public Special						
West Virginia	X	1969	2,000,000+	Micro-film card	Academic Public Special						
Maryland											
Delaware											
Ohio	X ¹	1937-	3,000,000		Academic Government Public Special						
Kentucky											
Virginia	X	1934-	600,000	Card	Academic Public Special						
Tennessee	X	1934-	600,000	Card	Academic Public Special						
North Carolina	X	1934-	2,000,000	Micro-film card	Academic Public Special						
Mississippi	X	1970	13,000	Print	Academic Public Special						
Alabama											
Georgia											
South Carolina	X										
Florida											
Louisiana	X			CON	Academic Public Special						
Arkansas	X	1967	3,116	Print	Public						
Oklahoma											
Texas	X	1972/1973	800,000	Microfilm	Academic Public						

¹Card catalogs have been frozen. Current titles are checked in OCIC catalog file.

Figure C-3. Statewide Union Catalogs (UC) and/or Union Lists of Serials (ULS) (Continued)

State	UC Date	No. of Titles	Form of Catalog	Types of Libs. Included	ULS Date	Titles	Form of List	Types of Libs. Included	Sectional Union Catalog
Michigan	No Report				X 1973	90,000	Microform		
Indiana					- Intrastate Regional lists				
Wisconsin					- Intrastate lists				
Illinois	No Report				- Intrastate lists				
Missouri					X 1973	55,000+	Computer type-set	Academic Public Special	
Minnesota									
Iowa					X 1972	5,325	Print	Public	
North Dakota	X 1965	1,000,000	Card	Academic Public Special	- UC includes serials			Academic	Denver Pub. Center (Card)
South Dakota	X 1969	1,000,000	Card	Academic Public Special	X 1973		Print	Academic	
Nebraska	X		Card	Academic Public Special	- UC includes serials				
Kansas	- Intrastate Region UC				X 1965	22,000	Print	Academic Public	
Wyoming					X 1971	2,262		Academic Public Special	
					X 1978	7,248	Print		
Utah	No Report								Denver Pub. Center (Card)
Colorado	- Intrastate Regional UC								
New Mexico	X 1972	60,000	Magnetic tape-print	Academic Public Special	X 1969		Print	Academic Public Special	
Arizona	X 1970	125,000	Card	Public	- Intrastate Regional list				
Nevada	X 1968	100,000	Card	All	X 1973	14,000	Computer Printout	Academic Public Special	
California	X	2,000,000+		Public Academic Special	X	32,000	Microfilm	Public Some Academic Special	
Zavali	X 1966		Card	Public	X 1965		Print	All	
Montana					X 1973/1974	15,000	Print	Academic Government Public Special	
Idaho									
Oregon					X 1971	10,500	Print	Academic State Special	PNDC (Card)
Washington	- Intrastate Region UC				X 1972	36,000	Print	Academic State Public Special	
Alaska	X		Card	All	- Intrastate Regional lists				

Table C-4. Percentage distribution of states by number of union lists

Number of Union Lists	Intra-State Union Lists	Statewide Union Lists	Regional Union Lists	TOTAL
0	61	22	94	11
1	17	44	6	28
2	9	33	-	33
3	6	-	-	13
greater than 3	6	2	-	15
TOTAL	100	100	100	100

considered a pressing problem by only nine percent of the respondents. This suggests that materials are in fact available for interlibrary loan and that the pressing need is for more efficient system of accessing those materials.

According to the respondents, the interlibrary loans needs of public and school libraries are slightly more adequately met than those of other types of libraries (Table C-6). As previously, the state agencies responded more frequently with regard to public library questions than those of other libraries.

In specifying specific materials needed as added resources by the libraries within the states (Table C-7), English language research monographs and periodicals were most frequently identified. Various forms of nonprint materials, not generally handled by ILL systems, were also suggested as needed. Otherwise, the characterization of materials needs seems to correspond

Table C-5. Percentage distribution of most pressing ILL problems of libraries within the states

Most Pressing ILL Problems	Percentage of Respondents Identifying Problem ¹
Communications	33
Verification of citations	33
Location of materials	48
Requested materials not available (not held, in use, non-circulating, etc.)	61
Current ILL restrictions	24
Delay in receiving materials (posted or delivery system)	57
Loss of in-house use of materials loaned	9
Cost of providing ILL service (staff time)	50
Other	7

¹ Multiple responses are included in the table.

closely with that of general interlibrary loan requests, with slightly more emphasis on foreign language materials. Thus what is needed is not a clearly identifiable group of materials not presently collected, but rather more of the same types of items now available.

Table C-8 suggests the services that should be provided by regional and national library networks. Emphasis is on a communications network at the national level coupled with a wide

Table C-6. Percentage distribution of types of libraries in the states whose interlibrary loan needs are adequately met within their states

Type of Library	Percentage of States Where Needs Are:		
	Adequately Met	Not Adequately Met	No Answer
Academic	17	72	11
Public	33	65	2
School	35	48	17
Business or industrial	13	65	22
Other special	11	44	46
Other	2	22	76

variety of services at the regional level. Access to little used materials was identified more frequently as a national function, with access to all materials, or commonly used ones, a regional function.

Table C-7. Percentage distribution of materials most needed as added resources by the states

Type of Material	Language and Date of Material			
	English Language		Foreign Language	
	Current (last 12 mos.)	Retrospective	Current (last 12 mos.)	Retrospective
Monographs				
Research materials	65	70	30	26
General fiction and nonfiction	48	46	26	17
Children's educational	20	11	9	9
Children's general	24	15	11	11
Periodicals				
Scholarly	59	67	22	26
General	33	44	15	15
Children's	15	13	4	4
Nonprint materials				
Educational films	46	28	13	11
General films	56	35	17	13
Recordings	41	13	9	6
Other	9	6	4	4
Other materials	15	13	13	9

Table C-8. Percentage distribution of services that a regional or national library resources network should provide

Services of a Regional or National Network	Regional Network	National Network
Bibliographic verification	72	44
Reference service	77	46
Materials location service	94	76
Joint technical services	54	26
Communications network	80	85
Guaranteed access to all commonly used materials	61	50
Dependable access to little used materials	70	78
Access to all library materials (including nonprint, children's, etc.)	70	48
Other	4	2

NATIONAL COMMISSION ON LIBRARIES AND INFORMATION SCIENCE

SUITE 601 • 1717 K STREET, N.W. • WASHINGTON, D.C. 20036 • TELEPHONE (202) 382-6595

FREDERICK H. BURKHARDT
Chairman

CHARLES H. STEVENS
Executive Director

Dear Respected Associate:

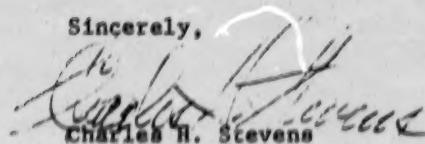
The National Commission on Libraries and Information Science is currently sponsoring a study entitled, *The Role of Regional Resource Centers and Bibliographic Centers in a National Network of Information Services*. NCLIS has contracted with Westat, Inc. of Rockville, Maryland, to design a national configuration of resource centers and bibliographic centers through which access to all commonly used library materials would be guaranteed.

This mail survey of directors at State Libraries or Library Agencies is being conducted to gain a better understanding of existing library networks and cooperative arrangements. Development of a national network that is responsive to needs and also compatible with existing resources and networks requires a comprehensive knowledge of resources, networks, needs, and problems in libraries throughout the country. Unfortunately, portions of this data are not presently available. The enclosed questionnaire is designed to elicit the desired information with regard to both current resources and unmet needs, as well as patterns and problems of existing networks.

Please complete the questionnaire at your earliest convenience and return it in the enclosed postage-paid envelope. You may contact Lucy Gray of Westat at (301) 881-5310 (call collect) if you have any questions.

Your cooperation in this important project will be greatly appreciated.

Sincerely,


Charles H. Stevens
Executive Director

Enclosure

National Commission on
Libraries and Information Science

OMB No. 174-S73003

Approval Expires: 9/30/74

Form I

RESOURCE AND BIBLIOGRAPHIC CENTER STUDY

Name of Organization: _____

Name and Address of
Library or Agency: _____

Person Completing
Questionnaire: _____

Title: _____

Telephone No: _____

Upon completion of this questionnaire, please return it to:

Westat, Inc.
11600 Nebel Street
Rockville, Maryland 20852

If you have any questions, please contact Lucy Gray at
(301)-881-5310 (call collect).

INSTRUCTIONS

- Several types of questions are included in the questionnaire. In most questions you are asked to circle the number(s) next to the answer(s) you select. The remaining questions call for either "fill-in-the-blank" or discussion-type answers.
- Your responses will be summarized with those of other librarians and will serve as guidelines in designing bibliographic center and resource center configurations for interlibrary loan.

A. GENERAL INFORMATION

1. Which of the following best describe the function of your library or agency?

(Circle all
that apply)

- Advisory. 1
 State-wide library development. 2
 Operate library communications network. 3
 Provide interlibrary bibliographic service. 4
 Serve as materials resource for libraries
 within state. 5
 Provide technical services to libraries within
 state (e.g., acquisitions, cataloging, etc.). . . . 6
 Other (Specify) _____ 7

B. STATE SYSTEMS OR NETWORKS

Questions 2-7 request information on library systems, networks, and cooperatives within your state. These networks may operate state-wide or within a region of the state, but they should not involve libraries in other states.

- 2a. Are there any library systems, networks, or cooperatives in operation or planned in your state?

Yes. 1
 No . . . (SKIP TO Q.8) 2

- 2b. If yes, please list the networks below. Include communications or bibliographic networks, but do not include local public library systems. Be sure to indicate whether each system is operative or planned.

If there are more than four systems or networks to list, please add numbers here and to all appropriate questions.

In Opera- tion	Plan- ned	Net- work No.	Name of System or Network	Coordinating Library (if any)
_____	_____	1	_____	_____
_____	_____	2	_____	_____
_____	_____	3	_____	_____
_____	_____	4	_____	_____

NOTE: Please use the network numbers above to identify each network in the remaining questions (3-7) in Section B.

3. What functions or services are performed by the networks in your state?

(Circle all that apply)

	Network			
	<u>#1</u>	<u>#2</u>	<u>#3</u>	<u>#4</u>
Interlibrary loan.	1	2	3	4
Communications	1	2	3	4
Verification of citations.	1	2	3	4
Location of materials.	1	2	3	4
Cooperative collection building.	1	2	3	4
Joint acquisitions	1	2	3	4
Joint cataloging	1	2	3	4
Joint materials processing	1	2	3	4
Other (Specify) _____	1	2	3	4

4. What types of libraries are served by the networks?

(Circle all that apply)

	Network			
	<u>#1</u>	<u>#2</u>	<u>#3</u>	<u>#4</u>
Public.	1	2	3	4
Small academic.	1	2	3	4
Large academic.	1	2	3	4
Business or industrial.	1	2	3	4
Other special	1	2	3	4
Other (Specify) _____	1	2	3	4

5. How are interlibrary loan and bibliographic requests from individual libraries routed through each network (e.g., from local library to regional (within state) library to state library to resource library)?

Network 1 _____

Network 2 _____

Network 3 _____

Network 4 _____

6. How does each network handle interlibrary loan requests which cannot be filled within its system?

(Circle all that apply)

Network

#1 #2 #3 #4

Returned to requestor as unfillable.	1	2	3	4
Referred to in-state library outside system.	1	2	3	4
Referred to bibliographic center outside system.	1	2	3	4
Referred to out-of-state resource library	1	2	3	4
Other (Specify) _____	1	2	3	4

- 7a. Is compensation provided for services performed within any of the networks in your state?

Yes. 1
No . . . (SKIP TO Q.8) 2

- 7b. If yes, who pays the compensation?

(Circle all that apply)

Network

#1 #2 #3 #4

State	1	2	3	4
Member library.	1	2	3	4
User.	1	2	3	4
Other (Specify) _____	1	2	3	4

- 7c. What form does the compensation take?

(Circle all that apply)

Network

#1 #2 #3 #4

Grant.	1	2	3	4
Budgetary support.	1	2	3	4
Transaction fee (per request).	1	2	3	4
Contract fee	1	2	3	4
Membership fee	1	2	3	4
Charge for photocopies	1	2	3	4
Other (Specify) _____	1	2	3	4

C. REGIONAL (MULTI-STATE) NETWORKS

This section (questions 8-11) deals with cooperative library arrangements which cross state lines and involve libraries from two or more states.

- 8a. Are there any regional networks or cooperatives either in operation or planned between libraries in your state and those in one or more other states?

Yes. 1
No . . . (SKIP TO Q.12) 2

8b. If yes, please list the networks or cooperatives below. Be sure to indicate whether each network is operative or planned.

If there are more than four networks to list, please add numbers below and to all appropriate questions.

In Opera- tion	Plan- ned	Net- work No.	Name of Network	Coordinating Library (if any)	States Included
_____	_____	1	_____	_____	_____
_____	_____	2	_____	_____	_____
_____	_____	3	_____	_____	_____
_____	_____	4	_____	_____	_____

NOTE: Please use the network numbers above to identify each network in the following questions (9-11).

9. What functions or services are performed by each network?

	(Circle all that apply)			
	Network			
	<u>#1</u>	<u>#2</u>	<u>#3</u>	<u>#4</u>
Interlibrary loan.	1	2	3	4
Communications	1	2	3	4
Verification of citations.	1	2	3	4
Location of materials.	1	2	3	4
Cooperative collection building.	1	2	3	4
Joint acquisitions	1	2	3	4
Joint materials processing	1	2	3	4
Joint cataloging	1	2	3	4
Other (Specify) _____	1	2	3	4

10. What types of libraries participate in these networks?

	(Circle all that apply)			
	Network			
	<u>#1</u>	<u>#2</u>	<u>#3</u>	<u>#4</u>
Academic.	1	2	3	4
Public.	1	2	3	4
Special	1	2	3	4
Other (Specify) _____	1	2	3	4

11a. Do the agreements of any of the multi-state networks call for compensation of services performed within the network?

Yes. 1
No . . . (SKIP TO Q.12) 2

11b. If yes; who pays the compensation?

(Circle all
that apply)
Network
#1 #2 #3 #4

State	1	2	3	4
Member library.	1	2	3	4
User.	1	2	3	4
Other (Specify) _____	1	2	3	4

11c. What form does the compensation take?

(Circle all
that apply)
Network
#1 #2 #3 #4

Transaction fee (per request) . . .	1	2	3	4
Contract fee	1	2	3	4
Membership fee	1	2	3	4
Charge for photocopies	1	2	3	4
Other (Specify) _____	1	2	3	4

D. UNION LISTS FOR LIBRARIES WITHIN STATE

12a. Do there exist any union lists of library holdings within your state?

Yes. 1
 No . . . (SKIP TO Q.13) 2

12b. Please use the chart below to describe those union lists for your state that are the most comprehensive.

Space is provided to include as many as five union lists. Please fill in the information requested and check all appropriate columns for each union list named.

Name of Union List	Date Compiled	Approximate Number of Titles	Scope of Coverage		Kinds of Materials Included			Types of Libraries Included				Form of Lists		
			State- wide	Intra- State Region	Books	Serials	Other*	Aca- demic	Pub- lic	Spe- cial	Other**	Print	Card	Other†

* Please specify _____

** Please specify _____

† Please specify _____

E. LIBRARY NEEDS

13. What are the most pressing interlibrary loan problems of libraries in your state?

(Circle all
that apply)

Communications. 1
 Verification of citations 2
 Location of materials 3
 Requested material not available (not held, in
 use, noncirculating, etc.) 4
 Current ILL restrictions. 5
 Delay in receiving materials (postal or
 delivery system). 6
 Loss of in-house use of materials loaned. 7
 Cost of providing ILL service (staff time). 8
 Other (Specify) _____ 9

14. Do you feel that interlibrary loan needs of each of the following types of libraries in your state are adequately met within your state?

Type of Library	Yes	No
Academic.	1	2
Public.	1	2
School.	1	2
Business or industrial.	1	2
Other special	1	2
Other (Specify) _____	1	2

15. Which materials do you feel are most needed by libraries in your state as added resources?

(Circle all that apply)

	English Language		Foreign Language	
	Current (last 12 mos.)	Retro- spec- tive	Current (last 12 mos.)	Retro- spec- tive

Monographs

Research materials . . .	1	2	3	4
General fiction and nonfiction	1	2	3	4
Children's educational.	1	2	3	4
Children's general . . .	1	2	3	4

Periodicals

Scholarly.	1	2	3	4
General.	1	2	3	4
Children's	1	2	3	4

Nonprint Materials

Educational films. . .	1	2	3	4
General films.	1	2	3	4
Recordings	1	2	3	4
Other (Specify) _____	1	2	3	4

Other Materials (Specify)

_____	1	2	3	4
_____	1	2	3	4

16. Which of the following services should a regional (multi-state) or national library resources network provide?

(Circle all that apply)

<u>Services</u>	Not		
	<u>Regional</u>	<u>National</u>	<u>Needed</u>
Bibliographic verification	1	2	3
Reference service	1	2	3
Materials location service	1	2	3
Joint technical services	1	2	3
Communications network	1	2	3
Guaranteed access to all commonly used materials	1	2	3
Dependable access to little used materials	1	2	3
Access to all library materials (including nonprint, childrens, etc.)	1	2	3
Other (Specify) _____	1	2	3

F. INTERLIBRARY LOAN STATISTICS

- 17a. Do you summarize any data on ILL activities in your state?

Yes. . . (SKIP TO Q.18) 1
No 2

- 17b. Does any other agency in your state compile these statistics?

Yes. 1
No . . . (SKIP TO Q.20) 2

- 17c. What is the name of the agency that compiles ILL statistics for your state?
- _____

18. What types of libraries report data for the ILL summary statistics?

(Circle all that apply)

Academic 1
Public 2
Special 3
Other (Specify) _____ 4

19. When returning this questionnaire, please enclose copies of any available statistical reports for ILL activities during 1972 in your state.

G. COMMENTS AND SUGGESTIONS

20. Please use the space below to comment on any of the topics covered in this questionnaire -- particularly on interlibrary loan and on cooperative use and processing of library materials. Discussion of specific problems and suggestions for improvement in these areas will be welcomed.

THANK YOU FOR YOUR COOPERATION

BEST COPY AVAILABLE

APPENDIX D
GOALS AND OBJECTIVES OF THE
NATIONAL RESOURCE SYSTEM

APPENDIX D

GOALS AND OBJECTIVES OF THE NATIONAL RESOURCE SYSTEM

Goal 1: Ownership of all significant materials in all libraries and information centers in the resource network.

Objectives

Long Range

1. A resource network supplying all needed materials.
2. Acquisition of all significant materials by libraries in the resource network.
3. Organized retention of little used resources.

Short Range

- 1a. Identification of major resource libraries and their collections, inclusion of these in the network.
- b. Expansion to include additional general and topical resource libraries.
- c. Collection support to provide sufficient copies of needed titles.
- 2a. Assignment of subject responsibilities to resource libraries.
- b. Resolution of major collection gaps, both in subject and format.
- c. Continuing collection support to resource libraries.
- d. Coordinated acquisitions by all network libraries.
- 3a. Inclusion of last copy depositories in the resource network.

Goal 2: Ease of access to the materials available in the resource network.

Objectives

Long Range

1. Transmission of requests upward in the resource hierarchy until filled, without intervention by the initiating library.
2. Opportunity of access to all significant materials by all citizens.

Short Range

- 1a. Assumption by libraries on all levels of the responsibility to transmit requests upward in hierarchy.
- b. Well defined protocols and procedures for transmission of requests.
- c. Provision of appropriate transmittal devices -- teletype, CRT, etc. -- in each library.
- 2a. An easing of the restrictions on access imposed by the Interlibrary Loan Code.
- b. Increased awareness of services and materials available.

Goal 3: Successful delivery of requested materials through the resource network.

Objectives

Long Range

1. Improved procedures for processing requests within resource libraries.

Short Range

- 1a. Dedicated interlibrary loan offices.
- b. Efficient utilization of professional and non-professional personnel.
- c. Support of processing costs.

2. Maximum delivery speed at each resource level.

2a. Utilization of hierarchical network to provide materials from nearest possible library.

b. Expansion of localized delivery services.

c. Full utilization of existing delivery technology.

d. Investigation of developing delivery technology.

3. 98 percent fill rate for all interlibrary loan requests.

3a. Fill rate criteria established for each level of resource network.

Goal 4: The coordination of new and existing libraries and information centers in a hierarchical resource network.

Objectives

Long Range

1. Inclusion of all libraries and information centers in the resource network.

2. Participation in network by local, state, and national library representatives.

Short Range

1a. Selected resource centers at multi-state level.

b. Addition of resource libraries based on collection.

c. Inclusion of topical resources at national level.

d. Incorporation of a variety of channels of access to the resource network.

2a. Establishment of a national library coordinating agency.

- b. Development of regional compacts for resource development.
 - c. Priorities and performance criteria set by representative body.
- 3. A single resource and bibliographic network.
 - 3a. Development of resource levels and functions.
 - b. Coordination with bibliographic network.

Goal 5: The development of a satisfactory funding approach.

Objectives

Long Range

- 1. Financing of the resource network responsive to the concept of the total U.S. information resource as "a national resource which should be sustained and made available to the maximum degree possible in the public interest."
- 2. The minimum total cost possible for a resource system consistent with the other goals and objectives of the national information system.

Short Range

- 1a. Equitable funding of resource network activities to reflect costs of participating resource libraries.

Discussion of Goals and Objectives

Goal 1: Ownership of all significant materials in all formats by libraries and information centers in the resource network.

The first goal is logically the first step in insuring the delivery of any requested material to library users. The

objectives suggest that this goal be accomplished in stages, beginning with a small set of resource libraries in the network and the resolution of major collection gaps within this set, with the gradual addition of new libraries and resource development activities until exhaustive coverage is attained. As libraries are added to the resource network, care should be taken to insure that acquisition of new materials is coordinated. This will be facilitated by the various files of the bibliographic network which enable a library to determine whether a particular item is already on order or owned by another library, and by the assignment of subject area and format responsibilities to resource libraries within a region. Coordinated acquisitions should insure both ownership of all significant materials by the resource network and no unnecessary duplication of little used materials.

Of particular importance in the development of resources is the provision for the acquisition and collection of materials other than monographs and periodicals -- initially, government documents, technical reports and the like, and ultimately, the inclusion of all needed resources, including non-print materials. The development of such resources, of course, must be accompanied by the development of methods of physical and bibliographic control for the materials involved.

Another area involved in the ownership -- by the network or by network members -- of all significant materials is the organized retention of little used resources, those which are in sufficient demand to warrant being retained on a regional or national level but not at the local level. This function might well be developed separately for different types of libraries, with the academic library depository an expansion of the current activities of the Center for Research Libraries in this regard. At least some last copy depository functions would also be performed at the

regional level, in conjunction with the regional bibliographic centers.

The ultimate result of combined programs for coordinated and supported acquisitions and maintenance of little used resources should be ownership of all significant materials by the collective units of the resource network. It should be recognized that while this does not mean all materials, produced, neither is the term "significant" synonymous with research -- the goal of equalizing access to materials implies that all needs must be met. While it is true that general educational and recreational needs should most frequently be met on the local level, there are legitimate needs in these areas which should be provided by the resource system.

Goal 2: Ease of access to the materials available in the resource network.

Ease of access is another important component of the provision of library materials; it is well known that difficulties encountered in obtaining materials establish both immediate and long term barriers to the full use of the available resources. Ease of access requires that the user -- through his primary library -- be able to access the resource network directly with his request, with all routing of the request performed by the network so that the user need take no action between request and receipt of the material. It is also important that the procedures for request transmission be clearly specified, and the appropriate transmittal devices be available in every library.

Ease of access also suggests the opportunity of access for all citizens; this implies a lifting of current restrictions on access as well as a positive commitment -- on the part of local librarians in particular -- to alerting library users (and potential

users) to services and materials available through the resource network. The current Interlibrary Loan Code might well be modified in the light of a national commitment to a resource network to allow for increased resource sharing, and other restrictions on lending imposed by individual libraries should not be included in the resource network protocols. Emphasis should instead be placed on a determination of services best provided at each level of the resource hierarchy, and on encouragement (and training) of librarians to rely upon their judgment in each individual situation.

One fear, not well founded in fact, is that an easing of restrictions on ILL will result in substantial volume of "unnecessary" requests. This potential problem should be avoided by the review of requests by the librarian with the user, but might also be deterred by the association of some small token fee with each request.

Goal 3: Successful delivery of requested materials through the resource network.

The resource circulation systems, well defined channels of communication, and support of the bibliographic network will assure that requests entered into the resource system will be routed through the system rapidly. In the case of material included in a future on-line circulation system, both request transmission and checking for availability will be accomplished immediately by accessing the file and entering a hold on the item to be delivered to the lending library. Other request transmission channels will be well-defined and structured so as to make maximum use of information and technology provided by the bibliographic network.

Within libraries providing materials in the resource network, the goal will be request processing that is fast, efficient, and effective. Internal procedures will be dependent upon the organization and procedures of the ILL staff, and such factors as department structure, flow of requests, and use of professional and non-professional staff should be carefully considered to achieve maximum utility.

Speed of actual delivery of the required materials will depend on the delivery channels utilized. Within current technologies, speed is closely tied to geographic distance, and the inclusion in the network of protocols establishing local resources as the first recourse should allow many requests to be delivered quickly through some form of localized courier service. Loans outside the local area will be dependent on mail or parcel service, but efforts should be made to determine how these services can be best used -- for example, place and time of day to mail, effects of various rates and services, and possible combination of mail or parcel service with a local courier service. To provide for the future, the development of improved delivery technology should be encouraged and closely monitored.

A traditional criteria applied to ILL services is the fill rate, and NLM's Regional Medical Library Program (RMLP) has established as a goal for their hierarchical ILL system fill rates of 70-80, 90, and 85 percent respectively at the local, resource, and regional levels, with additional materials provided at the national level. If accomplished, this goal would result in an overall fill rate greater than 99 percent for the program. In the resource network, too, fill rate criteria should be established at each level. These will be more dependent upon regional organization and resources than those of the RMLP, but should result in an overall fill rate of 98 percent. In establishing specific criteria at the different levels, it is important to take into

consideration the volume of demand and the resources available, and to determine reasonable goals for each level, including the local library.

Goal 4: The coordination of new and existing libraries and information centers in a hierarchical resource network.

The factors of ownership of materials, access and delivery discussed in the first three goals require an underlying organizational structure to define and coordinate the services provided. This structure should be established under the direction of a national library coordinating agency, as discussed previously, with the responsibility of identifying national goals and objectives and supporting programs to achieve these. Governance of the resource network should be representative at each level, involving all types of libraries and the appropriate state and national agencies and organizations. At the regional and zone level, it will be necessary to establish, via interstate compacts, new organizations to form an important part of the resource network. The role of coordinating body at each level of the resource hierarchy will be to arrange for provision of the appropriate services for that level, to coordinate the efforts of the individual libraries involved, to secure funding, and to determine protocols and performance criteria for services provided. An additional responsibility at the national level will be to coordinate the activities of the other levels.

All libraries in the United States should be involved in the resource network in some way, whether as national resources, regional bibliographic centers, zone coordinators, resources centers within a zone, state resources, some level of backup libraries, or participants to be determined by negotiation between the library and the appropriate level of the network. Initiation

of the system will probably involve the identification of a few, primarily research, libraries as bibliographic centers and resource centers, but care must be taken to insure that the network will be responsive to the needs of all libraries and library users, and that eventually all libraries will be included.

Development of the resource network must closely parallel that of the bibliographic network, with coordination at every level. The eventual goal is the merger of the two networks to create a unified system of organization and provision of materials to users.

Goal 5: The development of a satisfactory funding approach.

A substantial barrier to the rapid provision of all needed materials to users has always been, and will continue to be, the inadequacy of available funds. The functions which will be performed by the national resource and bibliographic network with regard to this problem include:

- a. The fostering of a national awareness of the importance of information to all components of our society and of the concept of the total U.S. information resource as a "national resource which should be sustained and made available to the maximum degree possible in the public interest."
- b. The coordination of services provided to allow for maximum utilization of available funding.
- c. Assumption of the responsibility to provide the needed services, and to assure the provision of reasonable levels of local, state, and national funding.

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APPENDIX E
ANALYSIS OF UNFILLED REQUESTS IN THREE STATES

APPENDIX E

ANALYSIS OF UNFILLED REQUESTS IN THREE STATES

An important factor in the identification of all, and in particular state level, resource centers is the characterization of resources to be made available to Resource Network users by the designated library. The State Resource Center is mandated both to provide a minimum fill rate in response to in-state requests and also to cooperate with other zonal resources in meeting the zonal fill rate criterion, and its resources must be adequate to meet these requirements. While the definition of an adequate collection will vary widely, depending on such factors as the characteristics of the demands made and the particular kind of organization within the state, data are presented below from three state systems to indicate in a general sense the kinds of definitions which might be made. The data are primarily on requests unfilled within the state systems, and suggests the kinds of requests which might be found above the state level in the National Resources System, as well as models for the State system development.

New York

A study of unfilled interlibrary loan requests in the NYSILL system, based on a sample of 140 unfilled requests selected from those handled in October - December 1968, was conducted by Nelson Associates, Inc.¹ Eighty-one percent of the requests in

¹ Ellis, Richard A., Thompson, Sarah Katherine, and Weiss, Janet, NIL: A Study of Unfilled Interlibrary Loan Requests in the NYSILL System, Washington, D.C.: Nelson Associates, Inc., September, 1970.

the unfilled sample were for monographic materials (Table E-1) as compared with monographs representing 72 percent for all requests. The fill rate for nonbook materials was 25 percent greater than for books.

Table E-1. Type of publication of 140 unfilled NYSILL requests

Type of Publication	Number of Requests	Percent
Serial	21	15
Monograph	114	81
Other	5	4
TOTAL	140	100

For the sample requests, subject matter and date of publication were distributed in a manner similar to all requests. The breakdown by subject matter (Table E-2) shows concentrations in the professional fields and the social sciences, with miscellaneous subjects also well represented. When compared with all NYSILL requests, the subject distribution shown has a slightly greater proportion of foreign literature, philosophy and religion, and business requests and a lesser proportion of requests in the natural sciences, education and medicine.

Date of publication of the unfilled requests (Table E-3) ranged from 1634 to publishing delayed indefinitely; the mean was 1950. In a pattern similar to that for all requests, approximately 30 percent of the requests were for materials published in the preceding three years and another 30 percent were for materials published in the eight year period 1958-1965.

Table E-2. Subject of 140 unfilled NYSILL requests

Subject	Number of Requests	Percent
Philosophy and Religion	16	11
Social Science	22	16
Natural Sciences, Mathematics	6	4
Applied Biological Sciences	5	4
Professional Fields	28	20
Fine Arts	5	4
Applied Arts	5	4
Literature	18	13
History	8	6
Fiction	2	1
Biography	3	2
Travel	1	1
Government Documents	3	2
Miscellaneous subjects	18	13
TOTAL	140	100

Table E-3. Date of publication of 140 unfilled NYSILL requests

Date of Publication	Number of Requests	Percent
to 1897	5	4
1897 - 1957	53	38
1958 - 1965	39	28
1966 - 1968	40	28
1969 -	3	2
TOTAL	140	100

Language of the unfilled requests is shown in Table E-4. About 14 percent of the sample requests were for foreign language items, compared to an overall NYSILL average of about seven percent. Among the foreign language requests, French and German were more common than the other languages requested.

Illinois

In a study of interlibrary loan and reference activities of the four Research and Reference Centers in Illinois, Westat collected a total of 1,875 requests received in late 1971.² About 66.5 percent of these were not filled. Analysis of all requests showed that 94 percent were for monographic materials, with a 30

² Palmour, Vernon E. and Gray, Lucy M., Costs and Effectiveness of Interlibrary Loan and Reference Activities of Resource Libraries in Illinois, Springfield, Illinois: The Illinois State Library, 1972.

Table E-4. Language of 140 unfilled NYSILL requests

Language	Number of Requests	Percent
English	121	86
German	5	4
French	7	5
Russian	3	2
Spanish	1	1
Italian	2	1
Other	1	1
TOTAL	140	100

percent fill rate and seven percent were for other materials with a 64 percent fill rate (Table E-5).

Subject, language and date of publication were found to be similarly distributed for all requests and for unfilled requests. Table E-6 shows the subject breakdowns, with social science, technology, "other," and fiction each accounting for more than 10 percent of the requests made. Language (Table E-7) of the requested materials was predominately English, and the distribution by publication date (Table E-8) was approximately 30 percent in each of the preceding three and eight year periods. Fill rate was slightly less for more recent materials.

Table E-5. Type of publication, Illinois Resource Library requests

Type of Publication	All Requests		Unfilled Requests	
	Number	Percent	Number	Percent
Periodical or Serial	106	6	36	3
Monograph	1,708	94	1,189	97
Thesis/Dissertation	1	*	-	-
Other	11	1	7	1
TOTAL	1,826	100	1,232	100

Table E-6. Subject of Illinois Resource Library requests

Subject	All Requests		Unfilled Requests	
	Number	Percent	Number	Percent
Philosophy and Religion	163	9	116	9
Social Science	336	18	235	19
Language	31	2	16	1
Pure Science	154	8	106	9
Technology	236	13	186	15
The Arts	175	9	107	9
Literature	99	5	59	5
History	143	8	80	7
Fiction	201	11	134	11
Biography	76	4	49	4
Ocher	235	13	142	12
TOTAL	1,849	100	1,230	100

Table E-7. Language of Illinois Resource Library requests

Language	All Requests		Unfilled Requests	
	Number	Percent	Number	Percent
English	1,859	99	1,238	99
French	6	*	3	*
Spanish	2	*	2	*
Other	3	*	2	*
TOTAL	1,870	100	1,245	100

* less than one percent.

Table E-8. Date of publication of Illinois Resource Library requests

Date of Publication	All Requests		Unfilled Requests	
	Number	Percent	Number	Percent
to 1900	31	2	16	1
1900 - 1960	501	27	284	23
1961 - 1968	558	30	336	27
1969 - 1971	528	29	390	32
Unknown	226	12	209	17
TOTAL	1,844	100	1,235	100

Analysis of the reason for requests not being filled (Table E-9) shows that 72 percent of the unfilled requests were for materials not owned, indicating that addition of new titles to the system should have greater priority than duplication of titles already held.

Table E-9. Reason request not filled, Illinois Resource Libraries

Reason	Number of Requests	Percent
Non-circulating	44	4
In use	248	20
Not owned	888	72
Other	53	4
TOTAL	1,233	100

Minnesota

In Minnesota, a special study was conducted of 1969-70 and 1973 unfilled monograph requests made to MINITEX to identify the trend and recent demand for materials. Serial requests were excluded from the study because of our recommendation that serial demand be handled through a separate National Periodical Resources System, but it is interesting to note the overall statistics on demand and fill rate for 1969-70 and 1973 MINITEX requests (Table E-10). With regard to serial demand, in 1973 84 percent of the requests made to MINITEX were for serial materials, and the fill rate for these requests was 92 percent, some 32 percent greater than the fill rate for monographs. This illustrates

Table E-10. Type of publication, 1969-70 and 1973 MINITEX requests

Form of Material ¹	1969-70 Requests			
	All Requests		Unfilled Requests	
	Number	Percent	Number	Percent
Photocopy or Microfilm	18,724	73	2,503	54
Loan	6,700	26	2,154	46
TOTAL	25,424	100	4,657	100

Type of Publication	1973 Requests			
	All Requests ²		Unfilled Requests	
	Number	Percent	Number	Percent
Serial	69,000 ²	84 ²	5,377	51
Monograph	13,000 ²	16 ²	5,221	49
TOTAL	82,127	100	10,598	100

¹ Most photocopies supplied are of serial materials; most loans are of monographs.

² Estimated.

the differences in the nature of and solutions to the demand for serials vs. monographs. Two samples of unfilled monograph request forms, 512 from 1969-70 and 522 from 1973, were selected for analysis. For these requests, subject, language and date of publication breakdowns are shown in Tables E-11 through E-13. As in

Table E-11. Subject of 1969-70 and 1973 unfilled MINITEX monograph requests

Subject	1969-70 Unfilled Monograph Requests		1973 Unfilled Monograph Requests	
	Number	Percent	Number	Percent
Philosophy and Science	68	13	42	8
Social Science	119	23	142	27
Language	10	2	9	2
Pure Science	29	6	22	4
Technology	65	13	95	18
The Arts	36	7	40	8
Literature	52	10	33	6
History	64	12	43	8
Fiction	21	4	22	4
Biography	8	2	17	3
Education	4	1	15	3
Other	38	7	42	8
TOTAL	514	100	522	100

Table E-12. Language of 1969-70 and 1973 unfilled MINITEX monographs requests

Language	1969-70 Unfilled Monograph Requests		1973 Unfilled Monograph Requests	
	Number	Percent	Number	Percent
English	450	88	473	91
German	44	9	18	3
French	11	2	16	3
Russian	-	-	3	1
Spanish	2	*	7	1
Italian	-	-	1	*
Other	7	1	4	1
TOTAL	514	100	522	100

* less than one percent.

Table E-13. Date of publication of 1969-70 and 1973 unfilled MINITEX monograph requests

Date of Publication	1969-70 Unfilled Monograph Requests		Date of Publication	1973 Unfilled Monograph Requests	
	Number	Percent		Number	Percent
to 1900	56	11	to 1900	25	5
1900-1961	222	43	1900-1964	228	44
1962-1967	146	28	1965-1970	170	33
1968-1970	88	17	1971-1973	97	19
Unknown	2	*	Unknown	2	*
TOTAL	514	100	TOTAL	522	100

* less than one percent.

Illinois, social science and technology requests account for the highest percentages of demand. Variations in demand distribution by subject between 1969-70 and 1973 are probably related to the introduction of new libraries and types of patrons as users of the system and also to reinforcement of certain frequently requested subject areas as appropriate to the system collections.

The language of unfilled MINITEX monograph results is overwhelmingly and increasingly English. As in other systems studied, German and French language materials account for some, though not extensive, demand. The language breakdown for unfilled requests is similar to that for all requests.

Observing the date of publication for unfilled MINITEX monograph requests for both 1969-70 and 1973, about 20 percent of the requests were for materials published in the three years

prior to the request date, and an additional 30 percent were for materials published in the six years previous to that. Somewhat less recent materials seem to be requested from MINITEX than through NYSILL or the Illinois system.

The breakdown of reasons for nonfulfillment of monograph requests is shown in Table E-14. As in New York and Illinois, "not owned" is the reason cited most frequently, although the percentage of requested materials "in use" has increased significantly between 1969-70 and 1973.

Table E-14. Reason request not filled

	1969-70 All Requests		1969-70 Monograph Requests		1973 Monograph Requests	
	Number	Percent	Number	Percent	Number	Percent
Non-circulating	373	6.6	51	10	80	15
In use	1,809	31.7	67	13	176	34
Not owned	3,150	55.2	383	74	256	49
Other	370	6.5	13	3	10	2
TOTAL (sent later 1,045)	5,702	100.0	514	100	522	100

Summary

Overall, analysis of the unfilled requests of the three state systems indicates that there are similarities in the demand characteristics of the three systems and furthermore, that there

are many similarities in each system between all requests and those which go unfilled. The predominant reason that requests are not filled is that the material is not owned. These observations combined suggest the possibility of use of existing resources within a network providing materials not found within an individual state system. Materials not available in one system are likely for the most part to be held by another state, and the same can be said for materials held but temporarily in use. These conclusions could not be reached if characteristics of demand varied widely among states or between filled and unfilled requests.

The data analyzed also has some implications for collection development within a state resource library or system, indicating general subject, publication date, and language classes which could be supported. Monitoring of requests within the Resource System -- down to the local level -- will provide necessary refinements for responsive collection development.

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APPENDIX F

DEVELOPMENT OF THE ON-LINE
FILES OF THE NATIONAL BIBLIOGRAPHIC
CENTER

APPENDIX F

DEVELOPMENT OF THE ON-LINE FILES OF THE NATIONAL BIBLIOGRAPHIC SYSTEM

Three primary types of data bases have been identified (Chapter 6) as necessary for development of a National Bibliographic System. They include:

1. A single standard comprehensive bibliographic record.
2. Location tools for rapid access to needed materials not held locally.
3. Supportive files designed to support local libraries in collection development, technical processes, and reference service.

F.1 Development of the National Bibliographic Data Base

A standard machine-readable bibliographic record has been made possible by the development of the MARC (Machine Readable Catalog) format at the Library of Congress. This format has been utilized in the processing of over 450,000 MARC bibliographic records, made available (with weekly additions) on magnetic tape, which provide the foundation for most of the shared cataloging systems currently operational or under development. Substantially lesser degrees of consistency and compatibility are provided by the original, individual library cataloging which now provides about half of all input to these systems.

About 110,000 bibliographic records are being added to the MARC data base annually at current production levels. Increased funding of the program could quickly expand this to 160,000 records per year, growing to 250,000 records per year

in five years. This would represent substantially all items cataloged by the Library of Congress each year. Current LC acquisitions include approximately three-quarters of the titles added annually in large research libraries, and substantial proportions of titles cataloged in other types of libraries.

While rapid acceleration of the MARC Program to provide MARC-format bibliographic records for all materials cataloged at the Library of Congress would greatly aid in the development of consistent records and improve possibilities for compatibility and interaction between variant systems, it is obvious that provision of a truly comprehensive data base will require added input from other sources. It is anticipated that coordination of such added input, as well as development of the necessary formats for types of materials not currently included in the MARC data base, etc. should continue as the responsibility of the Library of Congress through its MARC Program.

Several specific steps in development are suggested:

1. The total MARC data base (and weekly additions) should be placed on-line at a national computer node.
2. The Library of Congress cataloging authority files should also be placed on-line for use by other designated bibliographic record input sources.
3. The Library of Congress should designate additional sources for MARC input in precisely defined subject areas. Criteria for selection should include:
 - a. Willingness of the designated facility to provide bibliographic records in full-MARC format.
 - b. Ability of cataloging personnel at the designated facility to provide high quality bibliographic descriptions according to defined standards.

- c. Designated subject areas should be based on comprehensiveness of coverage of the area, and willingness of the facility to expand such coverage as required.
 - d. Added input should supplement LC holdings.
 - e. All types and levels of materials should be covered. (It has been noted, for example, that a central cataloging unit for school libraries in one of the southern states is required to do original cataloging for approximately 25 percent of the books added to school libraries annually. It is apparent that more comprehensive central cataloging in this area would greatly decrease expensive duplication in effort nationwide.)
- 4. Input from the designated sources should be edited by the LC MARC Editorial division, for completeness of record, format, proper tagging, etc., before being added to the national data base.
 - 5. As standards for transliteration of non-Roman alphabet languages are adopted, materials in these languages, as transliterated, should be included in the machine readable records.
 - 6. A manual file of original records for all non-Roman alphabet language materials should be maintained, including those transliterated in the machine readable records, and the NBS, in cooperation with the appropriate units of the Library of Congress should be responsible for provision of microform copies of the data as needed.
 - 7. The concept of utilizing a unique number for identification of materials should be studied. While the LC card number is currently filling this role as a search key in some of the shared cataloging programs, the standard international numbers for monographs and serials would appear to provide more comprehensive and effective future potential for national and international cooperation. The International Standard Serials Number (ISSN) is now being effectively used in the International Serials Data Program (ISDP). Better controls and some modifications in usage of the International Standard Book Number (ISBN) would, however, be necessary.

Coordination of the cataloging standards to be applied in broadening the MARC data base will also require some negotiation, definition, and compromise. Inclusion in the national bibliographic data base of such existing machine-readable bibliographic records as CATLINE (CATaloging on-LINE) of the National Library of Medicine, and CAIN (CATaloging and INdexing) of the National Agricultural Library will require acceptance of the full-MARC format and joint LC-NAL-NLM standardization of catalog rule interpretations. While use of LC authority files would aid in the development of consistent entries, some amplification of LC subject headings to permit the greater specificity required for NLM, NAL, and other specialized subject collections would also be necessary.

Some adaptation of non-book record formats may also be required. A project for coordination of the MARC-S (serials) and National Serials Data Program (NSDP) formats to provide a National Serials Record which incorporates all of the data required for bibliographic control as well as for the International Serials Data Program (ISDP) is already underway. Development of the serials data file could be accelerated by editing and inclusion of other "clean" MARC format serials records with appropriate modifications for required additional NSDP-ISDP data elements.

Consideration should be given to the most effective use of national bibliographic records, with the possible objective of developing sub-files for specific types of materials (e.g., monographs, maps, music scores, non-print materials, etc.). From the beginning, serials records should be designated as a separate file. Input to the national bibliographic files should be restricted to the LC MARC Editorial Division or other specified units in the Library of Congress and to designated libraries for specific coverage. Original cataloging (where a MARC record did not exist) by non-designated libraries should be edited for format, proper tagging, etc.) and entered, when desirable, by the LC

MARC Editorial Division or other specified units of the Library of Congress.

In addition, the development of standards for cataloging of all information materials produced and distributed by federal, state, and local government agencies should be encouraged and coordinated by the National Bibliographic System. When relevant, provision should be made for inclusion of these records in national bibliographic files and location tools.

Improved standards and methodologies for the control and retrieval of microforms and non-print materials should also be a concern of the National Bibliographic System.

F.2 Serials Data Bases and a National Union List of Serials

Since mid-1973, discussions have been held among librarians interested in the generation and maintenance of machine-readable union files of serials. At an informal meeting held during the American Library Association Conference in 1973, concern was expressed about:

1. The lack of communication among the generators of machine-readable serials files.
2. The incompatibility of format and/or bibliographic data among existing files.
3. The apparent confusion about the existing and proposed bibliographic description and format standards.¹

¹ Anable, Richard, "The Ad Hoc Discussion Group on Serials Data Bases: Its History, Current Position and Future," Journal of Library Automation, 6:4:1973, p. 207.

As a result of this meeting an Ad Hoc Discussion Group on Serials Data Bases was formed to study the problems associated with development of machine-readable union files.

"The problems associated with the generation and maintenance of union files of serials notes Anable, a member of the Steering Committee of the group," have multiplied in the last decade with the introduction of the Anglo-American Cataloging Rules (AACR), establishment of the International Serials Data System (ISDS), the presentation of the International Standard Bibliographic Description for Serials (KSBDS) proposal, the distribution of the Library of Congress MARC serials records, and the increasing role played by the indexing and abstracting services as points of access to serials lists of all types."

"Individually our institutions cannot comprehensively attack all of these aspects. If attacked independently, there is little chance of similarity of approach; if attacked jointly, through the establishment of a set of "agreed-upon practices," similarity will be greater. If attacked jointly through a cooperative conversion effort, the resulting file will be equally usable to all participants."²

The task seen for the National Bibliographic System in the development of serials bibliographic record files is primarily that of insuring that a standard authoritative record is provided to users of the system. As noted above, recommendation is made that the serials bibliographic records should be maintained in a separate file. This file should utilize the MARC serials format but cooperatively with other emerging machine readable serials programs to insure that the descriptions adopted are relevant and standard.

²Ibid.

"The tools which are essential to the full utilization of serial publications," remarks Osborn in his recent book on serial publications³ are: "(1) union lists, whose primary function is to record the location of serial sets wherever they may be found in libraries, and (2) abstracting and indexing services to disclose the contents of the set by author and subject. The location function makes it possible for people to carry on their research wherever the resources exist, to borrow some volumes on interlibrary loan, and generally to obtain photocopies of the parts or the sets that they need for their investigations." The Union List of Serials and more recently the New Serials Title have played an important role in meeting these requirements for serials.

Because of the importance of periodical materials to researchers and the heavy volume of demand for them through interlibrary loan, the Association of Research Libraries (ARL) in 1973 sponsored a study of the feasibility of a national system to supply the required materials. This study⁴ recommended development of a National Periodical Resources Center, which would be charged with the responsibility for comprehensive collection of periodical materials and supply of photocopies of journal articles on direct demand from any library. In addition to supply of photocopies from its own comprehensive collection, the Center was charged with responsibility for locating materials not held or materials available for loan rather than photocopying.

³ Osborn, Andrew D., Serial Publications: Their Place and Treatment in Libraries, 2nd ed., Chicago, Illinois: American Library Association, 1973.

⁴ Palmour, Vernon E., Bellassai, Marcia C., and Gray, Lucy M., Access to Periodical Resources: A National Plan, Washington, D.C.: Association of Research Libraries, February 1974.

Should such a system be developed concurrently with the National Library Network, location information for current periodical materials would assume considerably less importance. Locations for serials other than periodicals, for sources of loans for original periodical materials, and for retrospective holdings of periodical materials, however, would continue to be necessary. If the periodicals system is activated, such holdings information could be appended to the serials bibliographic file; if not, a separate Union List of Serials is suggested for more efficient searching. Holdings entries similar to those suggested for the National Location Register should apply. In all cases, however, holdings entries should be coded to indicate whether original materials will be loaned or photocopies provided, and keyed to the International Standard Serials Number (ISSN). Provision of secondary bibliographic access to serials materials is discussed in F.4.

F.3 Other Location Tools

Knowing where a needed item may be located does not of itself establish resource sharing or cooperative collection development, but such knowledge is certainly essential to the development of viable programs for those purposes. While regional development concepts anticipate a high level of resource self-sufficiency within regions, access to unique or rarely held materials, special collections, and general "backup" strengthening requires a national location register which can make available the strengths of designated national resources as well as those of other regions.

Creation of an on-line national location register may be accomplished in one of two ways:

1. By appending holdings information to the MARC records;
or
2. By establishing a separate National Location Register.

National Location Register

While, in general, the first method would appear to be more easily implemented, development of a separate National Location Register presents the possibilities for relatively early development of comprehensive location files for resource sharing. Until full retrospective conversion of earlier bibliographic records becomes feasible, the MARC file is necessarily and primarily a forward file (i.e., based on current cataloging), and the limited depth of the MARC data base constrains its value as a national location tool for older materials. It has been noted, however, that a conversion to machine-readable records of only those data elements necessary for location of materials would cost only half the amount of conversion to full-MARC format. In addition to supporting automation programs in libraries nationwide, such a limited conversion would permit comprehensive and up-to-date on-line location records for a substantial part of all materials needed by users, at both the national and regional levels of the network.

Records in the National Location Register should include specific identification of holdings of all designated national resource facilities with guaranteed access materials appropriately coded. In addition, items held by libraries within a regional (interstate) system, should carry a regional symbol (with appropriate coding for guaranteed access materials). Unique materials and items not available through guaranteed access should be further coded to indicate conditions for use by non-local users desiring access to them. Specific holdings information for items held in regional facilities should be included in regional location files.

Manual search capabilities for materials not included in the National Location Register should be provided by the Regional Bibliographic Centers, with only backup services and

access to holdings of designated national resource facilities provided by the National Bibliographic Center. Should the partial conversion of retrospective records be considered infeasible, the volume of manual searching required would be much increased at both levels, and the organization of currently available location tools would assume substantially greater importance. In this instance, however, the manual searches would be required only for retrospective materials, with current materials holdings included in the National Location Register providing on-line search capabilities. In all cases search for pre-1956 imprints would be manual, utilizing the National Union Catalog, Pre-1956 Imprints, as published by Mansell, with reference to the National Union Catalog facility at the Library of Congress for unpublished sections or additional holdings information.

Location Registers for Other Materials

Possibilities for development of on-line location registers for other types of materials, particularly non-print materials, should be studied. In many cases this would depend upon coordination of efforts between the NLN and the private sector. Since few non-print materials are currently exchanged through interlibrary loan, the usefulness of a location register would necessarily depend upon concurrent development of non-print resource availability.

Location of Foreign Materials

The National Bibliographic Center should be responsible for location of foreign imprints not held within the United States. For this purpose, the Center would collect all necessary location tools available, and forward requests for loans or photocopies to identified facilities as required.

F.4 Service Files

The Reference Files

As developments in almost all research areas are increasingly finding their early print dissemination in the "mini-monographs" of scholarly and other journals, and in public and unpublished private and governmental research reports, etc., bibliographic access to this large body of non-book print materials has also assumed increasing importance. The demand for such access has engendered a body of secondary bibliographic tools (abstracts, indexes, etc) developed by commercial profit and non-profit as well as governmental organizations.

In recent years a number of these tools have been made machine-readable for on-line and off-line search. Notable among the machine-readable data bases are OE's ERIC, Commerce Department's NTIS, NLM's MEDLINE and TOXLINE, NAL's CAIN, NASA's RECON, CA Condensates of Chemical Abstracts, and New York Times Data Bank, etc.

Unfortunately there has been little or no standardization in construction of these files or in search terms or strategies for using them. Few of these tools are totally comprehensive even within their generally narrow subject areas; development of a comprehensive subject bibliography may require search of several files with consequent duplication in citations, but no real assurance that all citations have been located.

Coordination of these variant services into a single comprehensive data base accessible through the National Library Network, would both simplify and improve access to this body of information.

Obviously development of a coordinated data base including such a wide variety of existing data bases will require study, and cooperation among the commercial profit and non-profit and governmental organizations involved would be a primary requisite. Assuming that such cooperation were assured, and that the involved organizations were interested in funding the development of a coordinated data base to be made available through the channels of the NLN, the following steps would be necessary:

1. Common formats for data input would have to be developed and accepted.
2. A file structure which could relate variant search terms would be required.
3. Search vocabularies and strategies would require coordination.
4. Duplications in citations would have to be eliminated through negotiation.
5. Gaps in coverage would have to be identified and arrangements made for inclusion of added materials from a relevant source.
6. Decisions would be required concerning standardization and allocation of charges for services by commercial profit services, and by non-profit and governmental agencies which require cost recovery.
7. Determination of services to be provided on-line as well as off-line capabilities and access to services, must be made.

While not a target for immediate implementation, early consideration should be given to possibilities of development of such a data base, to provide the necessary bibliographic access to the non-book print materials. Assuming leadership in the development of standards for bibliographic citations both for footnotes and for published or on-line bibliographies should, however, be an early priority of the National Bibliographic System.